The Iron Age

A Review of the Hardware and Metal Trades.

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Improved Elevator.

We illustrate herewith improved mechanism for elevators, in which will be found combined several novel devices tending to simplify the apparatus as well as to render the same strong and safe. Among the new features are the means for holding the platform should the hoisting rope break, the use of a single belt running in one direction to actuate the hoisting gear, an improved clutch, and a simple arrangement of an idler on the belt, in connection with a brake lever, which last, on the breaking of the belt, at once throws the brake into action, and so stops the machinery.

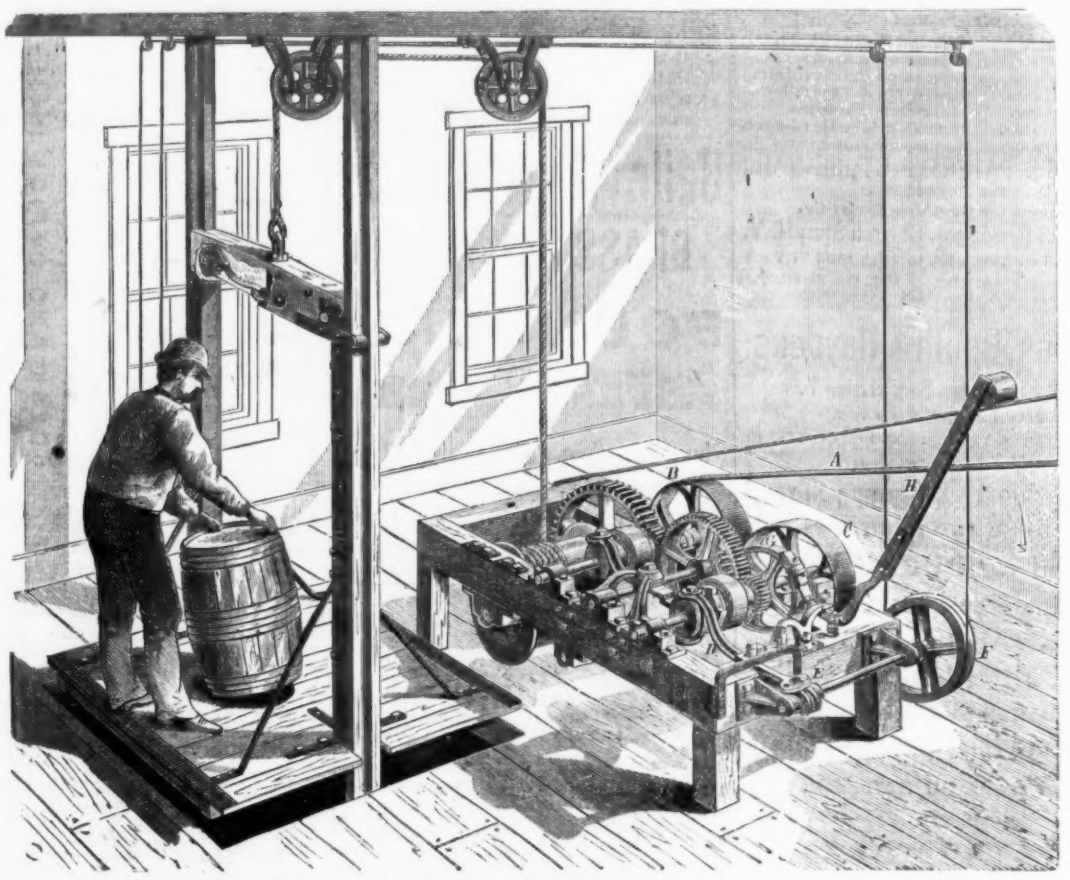
We also illustrate, in Fig. 2, the direct application of a steam engine to the hoisting gear, in cases, for example, where power cannot be obtained from some main source in the building. The engine is built by the same manufacturers, and is of neat and compact pattern, well adapted to this special purpose.

Referring to Fig. 1, it will be seen that the driving belt, A, is caused to lap over both pulleys, B and C, thereby rotating the same in contrary directions, and, through its application to a large pulley surface, communicating an increased amount of power without slipping. D is a bar pivoted to the center, and provided at each side of its pivot with clutchss which engage with pulleys on the shafts of wheels, B and C. It is obvious that but one clutch can be thrown into action at a time, and this is done by the end of the bar, D, at E, being provided with a projection which enters a worm on a shaft, at the extremity of which is a pulley, F. Cords from this pulley are led down alongside the elevator carriage. By means of said cords the pulley, F, may be turned in one or the other direction, so moving correspondingly the end of bar, D, and thus throwing into action one or the other of the clutches. The latter are of novel construction, and consist essentially of cones which, on entering the pulleys, expand movable pieces which enter V shaped grooves and tightly bind. The effect of operating the clutches is, as will be obvious from the gearing represented, to transmit motion to the hoisting drum in one or the other direction, and so to hoist or lower the carriage. In order to hold the mechanism during the instant when, in shifting the clutches, both are thrown out of gear, a bell crank lever, connected with the end of the bar, D, is provided. This, when the bar is moved either way, pulls down the brake on the brake wheel, G. The same, of course, serves as the means for stopping the carriage at any desired point. Connected also with the brake is a long lever, I, which terminates in an idler which rests on the belt. Should the latter become ruptured, the lever falls, and its weight, applying the brake at once, prevents accident by arresting the motion of the mechanism. This arrangement obviates the necessity of the governor usually provided.

An inspection of the standards in which the platforms travels will show that the rack, ordinarily placed on the inner sides, with which pawls engage, and so prevent the fall of the platform in event of the breakage of the hoisting is here done away with. The safety mechanism substituted is much simpler, and, at the same time, cheaper. It is shown in the broken away portion of the upper crossbar of the platform, and consists of a reversed T-shaped piece of iron, the vertical portion of which passes through the bar and serves as a point of attachment of the hoisting rope. The horizontal part of the T underneath connects with a leaf spring, and this with a toothed pivoted eccentric. When a strain is on the T piece, the spring is held out of action; but on the breakage of the rope the T piece falls, the spring is thrown outward, and the cam turned so that its widest portion becomes jammed, and the teeth bite in the wood of the standard, thus holding the carriage securely. The same arrangement is on each side of the crossbar, which is also steadied and held in place by the guide rollers shown at X.

The mechanism generally is of excellent construction, and, judging from practical trials which we have witnessed, appears to show that the claims of its manufacturers are fully substantiated.

For further particulars address the Holske Manufacturing Company, 279 Cherry street, New York city.



HOLSKE'S ELEVATOR—*Fig.* 1.

The Darien Rubber Industry.

At the present day the use of India rubber has become so extensive that there is hardly a trade in the country in which it is not employed in some form, or to which it does not in some way contribute. The Panama *Star* in an article upon the subject of the industry in Darien says: The Darien Indians, unlike those who inhabited the margins of the Amazon, seemed to have remained totally ignorant of the value of the milk of the rubber tree itself. In the beginning of the year 1860 small quantities had been sent to Carthagena, extracted on the banks of the Atrator. In tracing out the source of this rubber, and from conversations with the Indians who collected it, the observing mind of Mr. Recuero, now of Panama, led him to infer that an exploration on the Pacific coast might lead to the discovery of forests more abounding in caoutchoue yielding trees. Mr. Recuero did not hesitate to put his idea into practice, crossed the Isthmus, and landed at Darien in the latter part of 1860. He found the Indians of the Paya and Tapaliza accustomed to trade with civilized people, exchanging cocoa, pigs, plantains, &c., for the goods that they desired to obtain. The peaceable disposition of these tribes was cultivated and strengthened by trade and good treatment. The collection of rubber, when first suggested to them, failed to fix their attention, because the other products they had to offer for exchange satisfied their ambition and supplied their wants. It happened, however, that while the Paya Indians had large cocoa plantations, the Tapalizas had almost nothing and were *Indios pobres*. This circumstance had a favorable effect on promoting the views of the caoutchouc merchants. The Tapalizas, seeing that in the caoutchouc tree they had a product that would give them and their women the foreign luxuries the Payas obtained so easily with their cocoa, went to work to get out caoutchouc for which they were well paid, as a stimulus to increased exertion, and to gratify ambition. In 1862 the turn of the rich Payas came around as a consequence of one of those mysterious visitations in lands dedicated to agriculture. An epidemic disease or an insect plague fell upon the cocoa trees and reduced the Payas to a poverty as great as had been that of their neighbors the Tapalizas. Seeing how the latter were prospering, they also went to gratify the wishes of the caoutchouc merchant and the collection of rubber took a start in Darien which continues to this day, thanks to the perseverance and tact of Mr. Recuero. The Payeros have derived great benefit from the new industry, and camps for the collection of rubber began to extend far and near, following the course of the principal Darien rivers. The demand still continuing for the product in the markets abroad, a large number of men from Carthagena were taken to Darien, and rubber to Panama was brought in large and increasing quantities. Many of the Payas with their natural trading instincts, and the capital supplied them by their caoutchouc transactions, have become respectable merchants in their way, especially an Indian chief named Lete.

As the increasing demand for caoutchouc spread, the camps and the fields of labor extended beyond the confines of the land of the Payas and Tapalizas. Those desirous of carrying as far as possible up into the interior this industry, naturally came in contact with the Chucunaques, who have been at all times suspicious and hostile, and more inclined to fight than to trade. The Chucunaques may be said to form the only tribe that has repelled the advances of civilized life, as well as the friendship of the Payas and Tapalizas. They have resolutely opposed all idea of a canal through their territory, and the assassination of Messrs. Polanco and Castilla in 1853 was their work. In 1869 some Indians descended the Chucurti and pretended to be the friends of Francisco Rojas, who at that time headed a party of caoutchouc collectors, and of their own accord said he might collect along the banks of the river of their tribe. Believing in what they said, Mr. Rojas extended his operations into the forest in that direction only to find himself and party attacked, resulting in the death of some of his laborers. From all this it is easy to be seen how the Chucunaques and Chucurti have never entered into friendly relations with the caucheros.

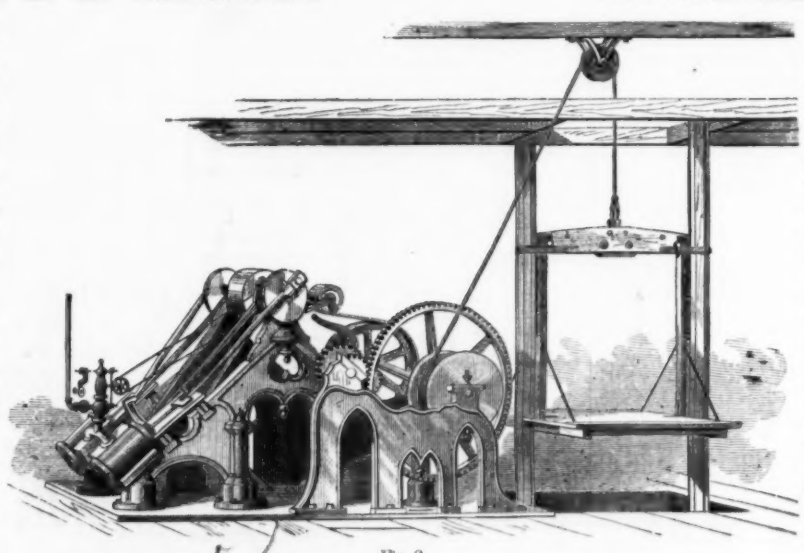


Fig. 2.

Wear of Steel Rails.—A French journal, referring to the preference now so extensively given to steel rails, thinks that the chief advantage which results from their use, as compared with those of iron, is that the wear caused by friction is even, being parallel with the length, and takes place slowly, whereas the best iron rails deteriorate under the influence of the traffic, and are found to be for the most part unfit for use before they have lost any appreciable portion of their weight by even wear.

In this connection, allusion is made to the experiments instituted by the great Northern Railway Company on iron rails from all sources, and which have demonstrated that the best samples, upon their system, have not withstood a traffic of more than twenty million tons, and that for those of ordinary quality this figure does not exceed fourteen millions.

Now, in the case of steel rails, it is claimed that all the trials proved that the table of the rail wears uniformly, at the rate of one millimeter for every twenty million tons passing over it; and as the rails are got out with a view to their losing ten millimeters by wear, it can of course be estimated that they will endure a traffic of at least two hundred million tons—that is to say, that the endurance of the steel rails is more than ten times that of the iron. This being the case, it is claimed that the substitution of steel rails for those of iron effects a great reduction in the cost of maintenance, at the same time that it insures a more even strength to the permanent way, and increases, in a high degree, the safety of working—which considerations, of course, are of paramount importance.

Knecht's Compound Pump.

This pump, called by its inventor an Independent Compound Pump, is intended to raise water where the ordinary suction pump is not available, or in situations where it is inconvenient to apply the power within 28 or 30 feet of the surface of the water. It is frequently needful to carry water a long distance horizontally, giving, say, 40 or 50 feet of rise to the pipe. In such cases it is impossible to locate the pump at the upper end of the pipe, because the pressure of the air will not lift the water to the desired elevation; the only recource is to place the pump at the other end of the pipe and within a proper distance of the water. This is inconvenient for many reasons, especially because a cistern must be built, and considerable pumping done at a time. In large buildings, the pump has generally to be located low down, so as to be within 30 feet of the water level. This invention locates a cylinder and balance weight near the water, but applies the power at any desirable point of the pipe, even at the extreme upper end. As an example of what the pump can do, we may mention a case where a hand pump lifts a 2¼ inch column of water more than 50 feet high, the horizontal distance being about 1500 or 2000 feet. F. Brandstaetter, Ilchester, Howard county, Md., has control of the invention, we understand.

The following is a description of the pump and its method of operation: Figs. 1 and 2 are vertical sections of the pump. Fig. 3 is a modification of the piston *d* and valve *g* of Fig. 2. Similar letters of reference indicate corresponding parts.

The pump consists of three principal parts, a force pump A, an auxiliary pump B, and a weight C, or its equivalent.

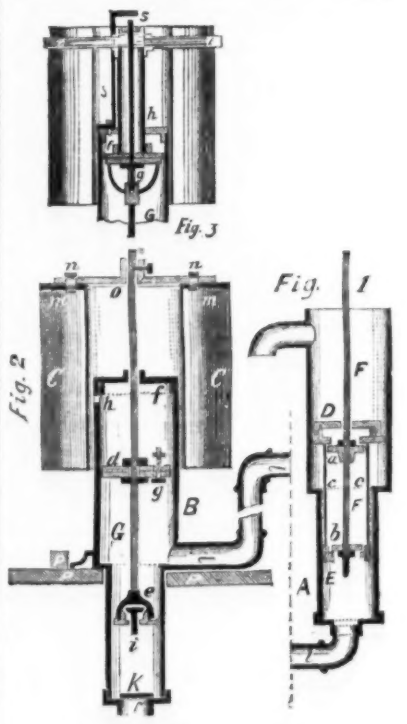
The pump A has one portion of the cylinder larger than the other, and contains one large and one small piston, respectively D and E. These pistons are connected by the rods *c c*. Two valves *a* and *b*, are secured to the rod F.

This pump can also be connected directly to a steam cylinder, vertically or horizontally, and used as a steam pump.

The auxiliary pump B has one portion of the cylinder larger than the other to correspond with the force pump A. Two pistons, *d* and *e*, are connected to the piston rod G, which latter extends through the cap *f*.

There is a safety valve *g*, held up by a spring which opens when it meets with the cap *f*, and relieves the pressure in case the piston *d* should rise too high. The waste water escapes through the port *h*. This safety or regulating valve may be arranged in the communicating pipe at any suitable point, controlled as in the case shown by the extended stroke of the piston *d*. The piston *e* contains a valve *i*. Below the piston *e* is the supply pipe *j*, which has a valve *k*. In the center of the cylinder, and between the two pistons, is a port *l*, which connects with the supply pipe of the force pump A.

The weight C is an annular vessel, and surrounds the upper part of the auxiliary pump B. This cylinder is made of sheet metal; is closed below and open above. It has two cross pieces, *m m*, around which are two loose rings *n n*. To the upper end of the piston rod G is secured the cross piece *o*, which supports the weight C by means of the ring *n n*. The pump rests on a plank or foundation *p*. There is a rest *q* for the weight C when down. Instead of the piston *d* and valve *g*, a piston and valve, as in Fig. 3, can be used. The stem of the valve passes through the pipe *h*, and a check S is arranged on the cap *f*, against which the stem will strike and open the valve in case the piston should rise too high, and the waste water will escape through the pipe *h*, and thence out at the pipes *t t*. The weight C has holes at the upper end, through which the pipes *t t* pass to support it. This vessel can also be made without the annular form, and placed above the cylinder to rest on the cross bar or its equivalent. The operation is as follows: The pump is filled either by pouring water into the pump A, or by pumping water into it, by raising and depressing the piston rod G of the pump B. When both pumps and pipe are filled with water, gravel or other material is put into the cylinder C until it balances the water in the pipe *l*. This done, the pump is ready for use. In the downward motion of the rod F in the force pump, the valve *b* meets the piston E, and closing it, the water below is forced down the pipe *l* and into the pump B, between the two pistons. The area of the piston *d* being greater than that of the piston *e*, the former will rise by hydraulic pressure, and carry with it the latter *e*, which, by atmospheric pressure, draws water through the pipe *j*. In the upward motion of the rod F the valve *a* meets with the piston D, and closes it, while the valve *b* opens to let the water through and fill the vacuum formed by the piston D, as it rises, and the water above the piston is discharged through a pipe or nozzle. Thus the upward motion of the piston D takes the atmospheric pressure off the pipe *l*. The weight C, thereby released, causes the piston *d* to descend, forcing the water into and along the pipe *l*.



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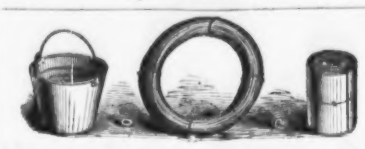

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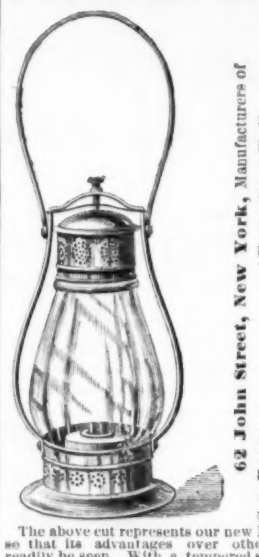

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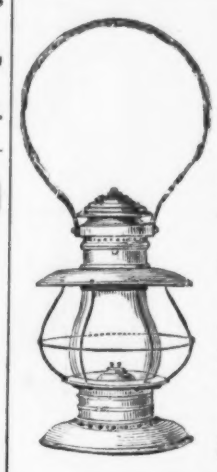

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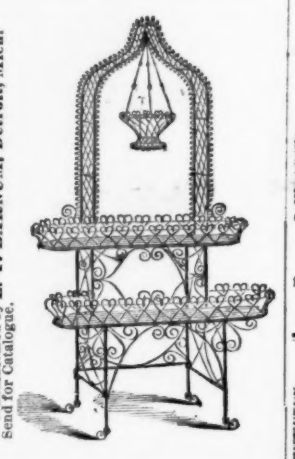

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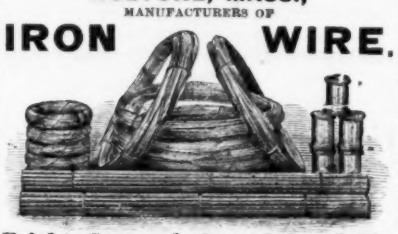

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The German Iron and Steel Trade.

With reference to the petition praying for protective duties on iron and steel manufactures which was sent to the German Emperor in May, by "the manufactures of Berg and Mark, we learn from the *Allgemaine Zeitung* that a counter petition, which declares that customs duties are not needed for the protection of the trade in German iron and steel manufactures for retail, is being circulated amongst those interested, and has already received 1350 signatures. The two chief points in the petition are —that protective duties will enhance the cost of the raw material of which articles for retail are made, and thus tend to hamper the export trade in these goods; and that the adoption by Germany of protective duties on iron and steel would result in similar measures on the part of foreign iron producing countries, which would have the effect of shutting out German goods from these markets. The petition urges further that diplomacy should exert itself to the utmost to induce foreign powers, notably France, Belgium, Austria and the United States, to adopt free trade principles, so far at least as Germany is concerned, and suggests that the effectual way to attain this end will be, not by imposing protective duties on iron goods, but by threatening to levy heavy export dues on the chief articles sent to those countries, as, for instance, in the case of Austria and France on wine and other articles" The experiment would be an interesting one, but we think they had better not try it. We can do without French and German wines better than we can dispense with our customs revenue.

The Progress of the Pig Iron Manufacture.

Mr. Richard Meade, of the Museum of Practical Geology, contributes an interesting article on the iron industries of Shropshire to the *Mining Journal*, from which we make the following extract: When in the beginning of the last century the exhaustion of our forests and woodlands was imminent, occasioned by the demand for the necessary charcoal fuel to sustain these industries, attention was directed to the useful application of coal in the blast furnace; the difficulties, however, were considerable, and it was not until Mr. Abraham Darby, at the Coalbrookdale Works, between the years 1730 and 1735, successfully solved the problem, that the use of coal previously coked came into use in the reduction of the ores of iron in the blast furnace. A most interesting chapter might be written if space allowed recording the many facts connected with the Coalbrookdale Works and the influence the discoveries there made have exercised on the iron industries of Great Britain. It may, however, be mentioned generally that it was also at these works that Mr. Abraham Darby's father had previously introduced the art of casting iron, and that at a later period the first iron bridge constructed in this country was successfully carried out, and is that which at the present time spans the river Severn at the thriving town of Ironbridge. Darby having, in the year 1735, succeeded in making pig iron of coke, experienced a new difficulty, that of securing blast of sufficient pressure to insure the complete utilization and combustion of the hard, dense coke in the furnace, and it was not until a quarter of a century later that his difficulty was overcome by the introduction of powerful blowing machinery, in which Smeaton led the way, followed by Watt and others. With these introductory remarks, the next point for consideration is the production of pig iron, and the earliest return published shows the following quantities for the year 1740, when it will be seen that Shropshire, as an iron producing district, ranked second in importance in England and Wales, and yielded 12 per cent. of the iron made:

Counties.	No. of furnaces.	Pig iron. Tons.
Breconshire	2	600
Cheshire	3	1,700
Carmarthenshire	1	100
Derbyshire	2	550
Glamorganshire	2	400
Gloucestershire	4	800
Hampshire	3	1,350
Herefordshire	6	2,850
Kent	1	200
Monmouthshire	2	900
Montgomery-hire	4	400
Nottinghamshire	1	200
Shropshire	6	2,100
Staffordshire	2	1,000
Sussex	10	1,400
Warwickshire	2	700
Worcestershire	2	700
Yorkshire	6	1,400
Total	59	17,350

The average make of the above furnaces at this period was, therefore, 294 tons of pig iron, coke being principally employed, except in the case of the Kent and Sussex furnaces, where there is every reason to infer that charcoal was still in use. In the year 1754 the works at Horsehay were established by Mr. Abraham Darby, of Coalbrookdale, previously referred to, and the first furnace put in blast two years later; it is recorded that from 20 to 22 tons of coke pig iron was made weekly, and such was its superior quality that it met with a ready sale. Until the year 1788 details are wanting to show the production; for this year, however, a well authenticated return was published, showing the make of charcoal and coke pig iron, the details of which will be found in our notice of the iron industries of Derbyshire. The total make of England and Wales is given below, with that made in Shropshire for comparison, and from which it will be seen that in 1788 Shropshire still continued a large producer of pig iron to the extent of 40 per cent. of the aggregate make of England and Wales:

	Charcoal pig iron. Furnaces.	Tons.	Coke pig iron. Furnaces.	Tons.
England and Wales	24	13,100	53	48,200
Shropshire	3	1,800	21	33,100

Toward the close of the year 1800 a committee of the House of Commons was appointed to inquire into the condition of the coal trade, and in a letter addressed to the chairman, William Manning, Esq., M. P., by Dr. H. G. Macnab, who represented the iron trade, are found very valuable statistics, showing the make of pig iron in Great Britain in the year 1796, when the production of Shropshire was as follows, that of Great Britain being 129,079 tons:

Works	No. of furnaces.	Pig iron made. Tons.	Av'ge make per furnace. Tons.
Benthall	1	1,334	1,334
Broseley	1	1,076	1,076
Coalbrookdale	3	2,659	886
Donnington Wood	2	3,321	1,108
Horsehay	1	1,458	1,458
Jackfield	2	1,820	910
Ketley	3	5,069	1,689
Lightmoor	3	3,498	1,166
Madeley Wood	1	1,856	1,856
Old Park	3	5,952	1,984
Snedshill	2	3,367	1,122
Willey	1	1,554	1,554
Total	23	32,966	

Thus, while in the year 1740 the average make per furnace was 294 tons, the above table shows that in the year 1796 the average had increased to 1433 tons, from which it will be seen that the furnaces will have been reconstructed, and their capacity greatly increased. A period of 10 years intervene, during which many new furnaces were built and new works established, and in 1806 the following statement shows the condition of things, when 42 furnaces were built, of which 30 were in blast, making 54,966 tons of pig iron, giving an average make of 1832 tons per furnace:

Works.	Furnaces. Built.	In blast.	Make of pig iron. Tons.
Barnets Leasow	2	1	574
Benthal	1	1	1,294
Bilingsley	2	0	..
Broseley	1	1	1,450
Calcot	5	1	2,269
Clee Hill	1	1	303
Coalbrookale	2	2	2,962
Cornbrook	1	1	292
Donnington Wood	3	2	3,400
Horsehay	2	2	3,834
Lightmoor	3	3	5,601
Ketley	4	3	7,510
Madeley Wood	2	2	2,951
New Hadley	2	2	3,612
Old Park	4	4	8,359
Queenswood	1	1	2,605
Snedshill	3	2	3,950
Willey	1	0	..
Wrockardine	2	2	4,000
Total	42	30	54,966

The total quantity of pig iron made at this period by the 161 furnaces in blast amounted to 243,851 tons, appointed to Great Britain as follows:

	Furnaces—In.	Out.	Total.	Pig iron. Tons.
England	105	35	140	149,163
North Wales	3	1	4	2,981
South Wales	35	10	45	68,867
Scotland	18	9	27	22,840
Total	161	85	216	243,851

Shropshire at this period contributed upward of 20 per cent. of the iron produced in the kingdom, while the average make of the blast furnaces had increased from 1433 tons in the year 1796 to 1832 tons in 1806. Advancing to the years 1823 and 1830, when Mr. F. Finch prepared a statement for the government of the pig iron made in those years in Great Britain, we find the following quantities recorded:

Districts.	1823. Tons.	1830. Tons.
Northumberland and Durham	2,379	5,727
Yorkshire	27,311	38,926
Derbyshire	14,638	17,969
Shropshire	57,962	73,418
Staffordshire	133,590	282,694
South Wales	182,325	277,643
North Wales	13,100	25,000
Scotland	24,500	37,500
Total	454,866	678,417

These figures show an increase since the year 1823 of 223,651 tons, being upward of 50 per cent., while the increase in the Shropshire district amounted to 15,495 tons, or 26 per cent. The statement following shows in detail the result of Mr. Finch's inquiry in each of the years named for the Shropshire works:

Ironworks.	1823. No of furnaces.	1823. Pig iron made Tons.	1830. No. of furnaces.	1830. Pig iron made Tons.
Broseley	2	..	2	270
Barnet Leasow	2	2,755	2	1,316
Benthal	1	..	1	..
Calcott's	2	1,883	2	..
Coalbrookdale	2	..	2	..
Dawley Castle	2	4,925	2	4,312
Donnington	3*	8,074	5	15,110
Horsehay	3	4,854	3	6,833
Hadley	2	2,080	2	..
Ketley	3	4,984	3	5,763
Lightmoor	3	6,052	3	6,194
Madeley Wood	3	2,415	3	3,171
Old Park	4	6,900	4	15,300
Snedshill	2	2,786	2	317
Wombridge	2	5,084	3	7,134
Wrockardine	2*	5,121	2	..
Stirchley	..	..	4†	..
Lawley	..	..	1	3,073
Langley	..	..	2	4,325
Total	38	57,923	48	73,418

The hot blast, the invention of Mr. James B. Neilson, in the year 1828, exercised an important influence in the increased production of iron, more especially in Scotland; later the system was adopted in the furnaces of England and Wales, though but partially in some districts, as for example the West Riding of Yorkshire, North Stafford-hire, South Wales and this district, where many of the works still employ cold blast, producing iron of a superior quality, which is in great request in the malleable works of the county. The next account of production to which attention is directed is for the year 1839, when there were 29 furnaces in blast in Shropshire, producing 80,940 tons, giving an average of 2791 tons per furnace, the make of Great Britain the same year being 1,248,781 tons, showing an increase since 1830 of 570,364 tons of pig iron. Again, in 1840, Shropshire had 24 furnaces in blast, producing 82,750 tons of pig iron, and in 1843 a falling off is observed to the extent of 6550 tons, the make of pig iron in that year being returned as 75,200 tons. This falling off in the production of pig iron was general in all the districts of Great Britain, and was due to the great depression of trade, which lasted from about 1840 to 1845; from 1845 the iron industries of Great Britain bounded forward at a rapid pace, which has been generally well maintained since that year to meet the many commercial requirements in which iron is now so universally employed.

* Two furnaces were built at Donnington in the year 1828, in the place of the two at Wrockardine, which were blown out.

† The quantity made in 1830 is included in the Old Park returns.

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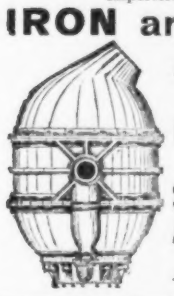
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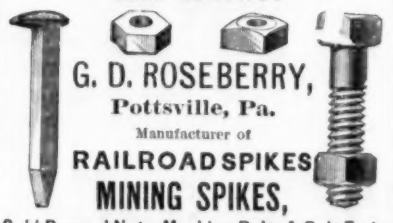
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New Patents.

We take from the records of the Patent Office in Washington the following specifications of certain patents lately issued, which will be found interesting:

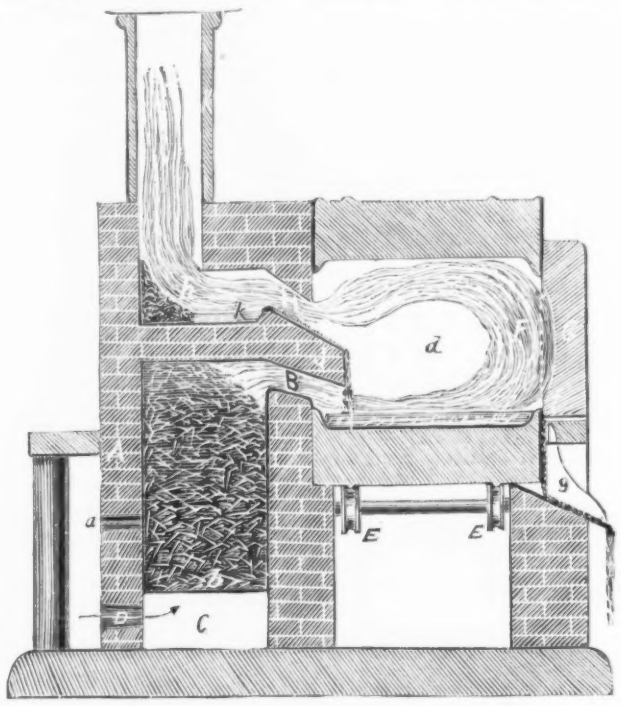
IMPROVEMENT IN PROCESSES AND FURNACES FOR MANUFACTURING IRON.

Specification forming part of Letters Patent No. 165,375, dated July 6, 1875, issued to Geo. J. Shimer and Samuel J. Shimer, of Milton, Pennsylvania.

The accompanying drawing is a longitudinal vertical section.

There are only two substances known to us that will deoxidize the oxide of iron—viz., carbon and hydrogen, in a highly heated condition. Carbon has been the agent used in practice almost exclusively, as it was the most readily obtained, and less chemical skill was required for its application; but the objection to its use for the manufacture of wrought or refined iron is that it combines with the iron, forming a carburet, which, in turn, must be reduced to form the refined metal, thus necessitating a second operation, and a consequent expense, beside deteriorating the original good qualities of the iron in ore, as every reheating, where the iron comes in close contact with the fuel results in the absorption of more of those impurities so hard to get rid of, and, in many cases, very detrimental, such as sulphur, phosphorus, silica, manganese, magnesia, etc.

We have in hydrogen a reducing agent that will give the desired result, by reducing the ore without combining with the metal.



IMPROVED REDUCING FURNACE.

In the English patent of Gurlt, No. 1679, of 1856, a process of reducing iron ore by means of hydrogen gas is described. But, previous to the action of the gas upon the ore, a portion of atmospheric air was allowed to combine with it, thus reducing the deoxidizing power of the hydrogen gases, and proportionately lessening their effectiveness, without a corresponding economic gain or advantage in the degree of heat. The reduction was carried on at a temperature below the melting point of the ore; consequently a second operation was necessary for the purpose of ridding the metal of foreign substances.

In this invention melted ore is acted on by a blast of highly heated hydrogen gas, and the same blast, combined with atmospheric air, is caused to melt the ore preparatory to such action. The blast is produced from bituminous coal, and the whole operation is carried on at a temperature above the welding heat of iron.

The invention also relates to a certain construction of furnace for economic application of the process, all as hereinafter described.

A represents heating furnace, being a chamber lined with refractory material and arched over. Immediately below the arch are openings, or inclined chutes *a*, for the supply of coal, and at the sides are openings *a'*, for the purpose of poking the fire. On the one side is a lengthy opening B, for the escape of blast, the grate *b* forming the bottom to chamber A, and below this is ash pit C, which will, in practice, be provided with a suitable opening, through which the fire may be raked and the ashes removed. The blast pipe D is in one of the walls below the grate, and against the side with the opening B for the heated blast, is arranged a rotary chamber *d*, constructed of iron, cylindrical in form, with openings at each end, and lined with refractory substances. The latter are so arranged as to hold a certain amount of molten material, being deeper immediately inside the openings, and mounted upon grooved wheels E E E E, that, by the tracks, guide the cylinder in its rotary motion. This motion is communicated by means of the grooved wheels E E E E, the same being fastened to shafts connected with the motive power. The cylinder *d* being on a level with inside lining, the opening F is the largest, so that the waste flux will escape by means of drip *f* on door G, and down drip *g*. The door G is used for the removal of the iron, and is closed when the furnace is operated. The blast enters from heating furnace A through opening B below the axial line of rotary chamber *d*, and passes along lower part of same, recoils, and passes back along the upper part and out through opening H. The latter is inclined upward, leading into chamber *h*. The opening B, where blast enters, and the opening H, where the same escapes the rotary chamber, *d*, are within a space equal to the circular opening of the smaller end of chamber *d*, and the wall of the heating furnace at that place is so arranged that a brick of plumbago, J, or other refractory substance, may easily be inserted between the openings. The brick J is so constructed and inserted as to overhang the end of rotary chamber *d*, forming a drip to chamber *h*, and also give a downward current to the blast entering rotary chamber at B. The chamber *h* is built by continuing the walls of the heating furnace above its arch, and arching same over at the upper end of chamber *h*, where are feeders or chutes *i*, for the supply of ore. These feeders are to be kept full, and can be increased in nuber.

The chamber *h* is extended to utilize (for melting) all the heat prior to its passage up the stack K. At *k*, in chamber *h*, is an opening provided with a door (not shown), for the purpose of treating the molten oxide of iron with limestone or other neutralizing substance, should the same be necessary. The bottom of chamber *h* is made several inches lower than the inclined opening H, by which the blast enters, and the molten oxide of iron contained in chamber *h* is thus at all times several inches deep.

The various qualities of ore exposed to blast may thus the more readily be mixed together to produce an iron with different qualities. The operator can also at will give draft of air to blast at opening *k*, which, combining with the superabundance of hydrogen yet unconsumed, increases the heat of the blast for the purpose of smelting the ore more rapidly, if required, or for burning off sulphur.

This apparatus being for the purpose, first, to generate a deoxidized blast, and, next, to expose to its action the greatest amount of oxide of iron, need not necessarily be built as represented; but may be in any form wherewith the operator can expose to the action of a deoxidized blast the greater amount of molten oxide of iron.

Having described the apparatus, its action is, first, to produce a deoxidized blast by means of the heating furnace A, wherein a fire is kindled and bituminous coal is applied, or part bituminous and part anthracite coal, until the same is filled, including the openings.

When the furnace is operated, the ash pit opening is closed, as also apertures *a'*, with balls of clay, and are only opened to renew or enliven the fire, as the same becomes compact. The openings *a* are kept full of coal, and the fire is self-feeding as the consumed coal sinks away. The blast, by means of pipe D, is so regulated in force as to effect the decomposition of all its oxygen in its passage through the whiter or superheated coals, the blast acting upon the continually fresh supply of coal on top of fire, and expelling a portion of its hydrogen gases. Thus we have a highly heated blast composed of carbonic oxide, carbureted hydrogen and hydrogen gases, which, passing through the aperture B below the inserted brick J, forces the blast in a downward current, which passes through the drippings of the molten iron ore from chamber *h*, and over the molten mass of nearly reduced iron, refined iron, and flux contained in rotary chamber *d* to the back end of same. This blast then recoils and passes along upper lining, and through the inclined opening H, thus presenting to the action of a deoxidized blast the molten oxide of iron as it passes down inclined chamber H.

This molten oxide comes against the current of blast, and, dripping through, it is deprived of its oxygen by the superabundance of hydrogen contained in blast. The oxygen unites with the hydrogen, producing heat, and such particles as may not be reduced sink through the flux to the lining of rotary chamber *d*, where they are brought up by its rotary motion, and exposed to the action of blast along said lining.

At opening *k*, in chamber *h*, a fresh supply of oxygen may be introduced to consume the undecomposed hydrogen yet in blast, and increase the heat, and utilize all the fuel, which cannot be stinted in heating or deoxidizing chamber A.

Should the smelting proceed too rapidly, the opening *k* is closed, and the deoxidation is commenced and partially effected in chamber *h*. As the oxide of iron becomes deoxidized in its passage down the inclined chamber H, and its fall through current of blast to lower side of chamber *d*, it becomes of a different nature, having adhesive qualities, while the concussion of its fall (striking against lower side of the rotary chamber *d*) expels all the flux and foreign sandy matter. The refined iron forms and adheres to a mass or ball as rapidly and as evenly as the same is produced. Thus, in consequence of the small particles of reduced iron added to the ever-changing surface of the ball or mass, caused by the motion of the rotary chamber, the weight of iron formed acts upon the addition of each layer as the same revolves on bottom of chamber, picking up such particles as may have become reduced from the flux on the sides of chamber. The flux is expelled by the weight of the mass.

There is thus produced a pure mass of iron ready for the rolls upon its removal from the chamber *d*, to be finished for market without reheating or reworking.

In patent No. 92,894 a blast from which air is excluded has been described. The action of a blast from which air is excluded is not, therefore, broadly claimed, nor the use of the spent gases for roasting or desulphurizing the ore, as the invention herein described is based in part upon melting the ore before deoxidizing it. In the process carbonization is prevented, and an important advantage is obtained in rapid and economic production of iron.

Claim.—1. The process of reducing iron ore to wrought iron in one operation, consisting, first, in subjecting the ore in a liquid or molten condition to the deoxidizing influence of a blast containing hydrogen or carbureted hydrogen gases, and secondly, in melting the ore by the subsequent action of the same blast admixed with atmospheric air, as described.

2. In a metallurgic furnace, the combination of the heating furnace A, the forming chamber *d*, inclined passage H, and smelting chamber *h*, the latter having a floor cavity or depression from which the melted ore overflows and passes down the contiguous inline to chamber *d*, being thus subjected to the action of the blast in the desired manner, all as shown and described, to produce the result specified.

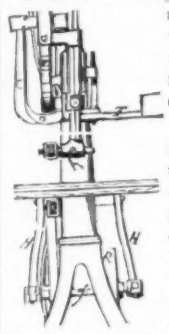
SHUTTLE FOR SEWING MACHINES.

To Charles E. Billings, Hartford, Conn.—A sewing machine shuttle having an adjustable

screw in its forward end, which, respectively, serves to regulate the tension of the sliding socket for bobbin and of the tension spring. The combination of the screw F, the socket D, and the tension spring C, the several parts being constructed and relatively arranged as shown and described, whereby the screw which adjusts the tension of the tension spring holds the yielding socket in place.

BAND SAWING MACHINE.

To B. D. Whitney, Winchendon, Mass.—The axles of the wheels upon which the saw runs are provided with removable bearings placed in front of the saw.

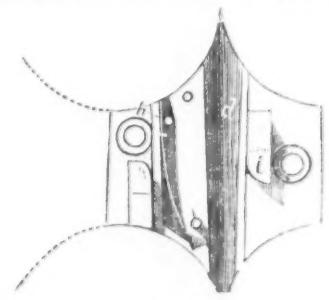


1. The yoke C, having bearings on both sides of the wheel E, in combination with the adjusting and compensating device, consisting of the slide D and the lever L, with its sliding weight W, the fulcrum of said lever being directly in the plane of the strain of the saw.

2. The arrangement of the journal boxes H H on both sides of the lower saw wheel J.

CONDUCTOR FOR NAIL ROLLING MACHINES.

To R. E. Cady, Boston, Mass.—A pivoted channel piece is pressed back against the resilience of a spring when the channel becomes unduly crowded. A finger on the channel piece, projecting through a slot in the removable front plate, disengages the intercepter spring from its notched holder, and permits intercepter to fall and cut off the supply to the



conductor, when the locking bar is turned, the front plate taken off, and the nails removed.

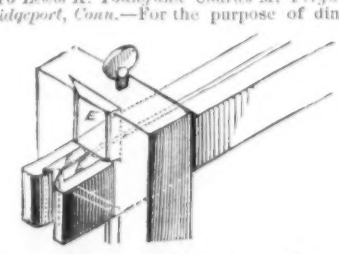
1. A conductor for nail rolling machines, consisting of the back plate and the removable front plate and locking bar.

2. In a conductor for nail rolling machines, the removable front plate and the movable channel piece and finger projecting therefrom.

3. The combination of the back plate *c*, and the movable spring operated channel piece and its finger with the front plate and the notched holding pin *n*.

BAND SAW GUIDE.

To Lewis K. Young and Charles M. Ferguson, Bridgeport, Conn.—For the purpose of diminishing the friction caused by the rapid motion of a band saw, the guides are constructed of glass.



Glass guides for band saws, substantially as seen at E in the drawing.

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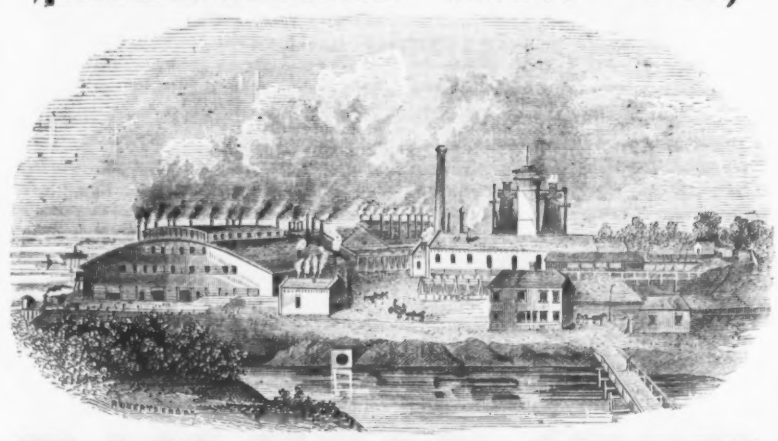

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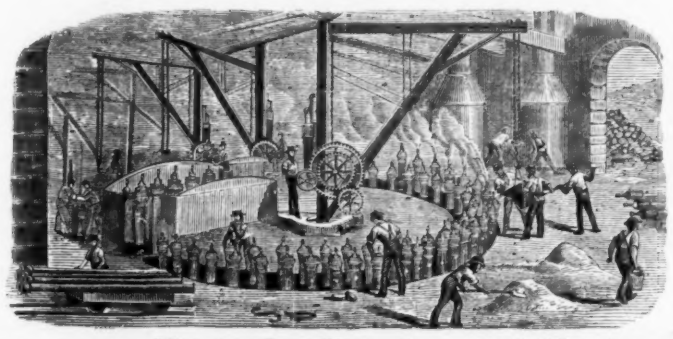

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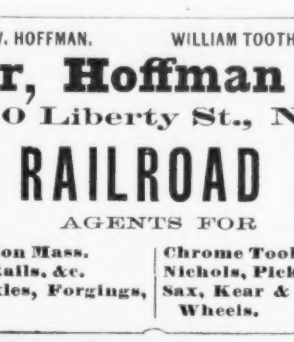

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The Romans first introduced iron and steel coining dies into England—together with other improvements in manufacturing art—during their term of occupation. From their days down to those of Oliver Cromwell and Charles II., when the most distinguished die engraver ever known—Thomas Simon—flourished, few improvements in this direction can be recorded. Simon, however, who was then chief engraver to the various British mints in existence at the time, left imperishable marks of his genius as an artist and his skill as a workman. His medals of the Commonwealth, and his "Petition" crown of the Restoration* are proofs of his marvelous ability as a designer and engraver of dies. In the numismatic department of the British Museum are to be seen coins and medals of every period, and of every variety—rude, and elaborate in design, as well as rough, and highly finished in workmanship—while at the die depository at the Royal Mint dies of all ages, and ornamented with every description of device, are carefully preserved.

The whole of the tens of thousand of dies, large and small, annually used in the Royal Mint are prepared within the walls of that establishment. To this purpose one large and distinct section of the place is devoted. It is entirely apart from the coining rooms, and has its own official staff, its steam engine, forges, machinery, fitments, and all requisite appliances for its purpose. This is known as the die department. A vital point in the production of coining and medal dies is the judicious selection of the material of which they are to be made. That material is the very finest cast steel which Sheffield is able to furnish. There are two good and sufficient reasons for employing this choice and costly metal. The first is that when properly faced and softened for the purpose the fine lines to be put upon it by the artist may be brought out with adequate distinctness. The second, that it shall have enough of homogeneity, toughness and strength to enable the dies made from it to withstand the constant "hammer, hammer, hammer" of the coining press. The choosing of the bars of cast steel to be converted into dies is thus a very important matter. Constant practice, close observation and various testings have made the die sinkers and workmen of the Mint excellent judges of the quality of the article, and hence they seldom fail to obtain it in a high state of perfection.

That kind of cast steel which shows when fractured a moderately fine grain, has a bluish hue, is of uniform texture, and, when polished and placed under a magnifying glass, reveals no spots, is (mechanically speaking) the best.

Then let it be further supposed that a totally new denomination of coin—say, for example, a three-shilling piece has been required to be struck at the Mint. The designs of the engraver, we will imagine, have been submitted on paper to the Queen and the government, and have gained the approbation of both. Then it becomes the duty of the artist to issue his orders to the foreman of the department. When a totally new coin is to be issued, the designs on paper are submitted to the government and approved; the artist then issues his orders to the foreman of the department. His first requirement is two short lengths of steel, to be cut from the best bar in stock, of the proper size, and which size he furnishes. This done, the resulting die blocks are forged into round form by the smith. Subsequently they undergo an annealing of a peculiar kind. The blocks are placed in a wrought iron pot, buried therein in animal charcoal, and then submitted to a "soaking," and regulated heat for many hours.

After removal from their cells, the blocks are cooled and transferred to the turning room. Here they are faced up flatly and smoothly in the lathe, and then they are ready for the studio of the engraver. The approved designs of the obverse and reverse of the newly ordered coin are placed before him, and, commencing with the head on the coin, he proceeds to trace the devices upon the softened blocks of polished steel. In describing the operations of the artist, the operations in producing the face of the coin will be first described.

Assured of having put in his outline correctly, the actual work of engraving now commences. It is a slow and laborious process, but little by little the features of the head become visible under the gentle force of the well directed graving tool. It may be that weeks will elapse ere the finishing touch is given, but meanwhile many proofs, taken in soft metal and sealing wax, enable the patient operator to judge accurately of the progress and degree of success attending his exertions. Eventually the image and the superscription—which latter is pressed into the softened steel by means of letter punches and hammer—appear distinctly in in taglio. The proofs taken from it are at length deemed satisfactory, and every line and point of the original drawing being copied, the engraver's task is so far ended. The reverse next occupies his attention; the device is etched in, and realized in a manner analogous to that described, then the inscription is stamped in by force of punch and hammer, as are also the two first figures of the date of the year in which the dies are engraven. For instance, if the date be 1875, only the figures 1 and 8 will be imprinted on the new die or matrix, as it is technically termed, space being left for the others. If need be, they are put again into the lathe, and any superfluous metal is removed from beyond the outer circles or ingrailings which encompass the devices.

Then comes the crisis in the existence of matrices, or dies. In the softened state they are useless for their future work. In fact, they must be hardened and tempered. The risk of disaster is considerable, and the anxiety of the engraver is commensurate with it. Nothing is simpler, as our readers well know, than hardening steel for ordinary purposes, but hardening a die matrix, whose face is ornamented with elaborate and delicate engraving, and keeping the latter intact the while, is quite another thing. To accomplish it satisfactorily great precautions are taken. A mask is placed over the face of each matrix before the operation of actual hardening is commenced.

This covering is composed of fixed oil thickened into a paste with animal charcoal, or of lamp black and linseed oil. Thus the engraving is made secure from actual contact with fire or water. With the faces thus concealed, the matrices are placed face downward in a crucible, and then buried in animal charcoal. The loaded crucible is now deposited in a furnace and heated to the brightness and color of a cherry. After remaining at this temperature for the space of an hour or more, the dies are taken out one by one from the charcoal by means of a pair of tongs and plunged into a cold water bath. In this they are held and swayed to and fro by the manipulator until they cease to sputter and to hiss—which at first they do. If a die, in addition to sputtering and hissing, should pipe and sing whilst in the bath, the engraver will understand too well that the sounds in question could only proceed from a mouth or fissure in the die, and that his work upon it has been but labor lost. Fortunately, such accidents are of the rarest occurrence at the Royal Mint.

The dies are next submitted to the polishing and tempering process. The first is accomplished by lapping, or holding the table of the die dexterously and firmly against a running disc of iron lightly coated with flour emery and oil. The tempering is effected either by placing the dies in water gradually raised to the boiling point, or by standing them on a bar of iron properly heated for its work, until they assume the rich straw color which denotes the proper temper for their work.

* Of this latter piece only six copies are known to exist, and the value set upon them by coin collectors is £300 each.

Japanese Paper.

Paper making, says the *Paper Trade Journal*, has been practiced in Japan for about 1200 years, and it is thought that in 610 Doncho, a Corean priest, paid a visit to the country and taught the natives the art. After him Shotuku Taishi took especial interest in the manufacture of paper, and went to work to bring about an improvement, and succeeded in producing four superior sorts of paper. Probably little change has taken place since in the method of manufacture, but Japanese ingenuity has marvelously developed, and paper is now employed for every conceivable purpose.

English makers have little faith in anything but rags, but the Japanese leave rags alone, using wood fibre, and, notwithstanding the fact of their method being rough and their appliances rude, they contrive to turn out a great variety of papers. Papers of every tint for correspondence, court use, government dispatches; paper designed for letters of ceremony, congratulation and compliment; for the display of ornamental penmanship, sketching, painting, for versifiers and song writers. Packing papers of every description, some set apart for particular use, as for packing presents, incense, tooth powder, cakes, sweetmeats and medicine. Tracing papers, copying papers, account book papers, wall papers, some for first coating, some for receiving decorations at the artist's hands, some decorations in themselves; papers for covering screens, slides, and sliding doors belonging to family shrines; papers for book covers, made to imitate leather; papers for doll dressing, scroll framing and picture framing; papers for box making, papers for covering lanterns and windows, toys, and, in fact, every conceivable article.

Paper is made into pocket handkerchief books, so that you can take out a leaf, use it, and throw it away.

Paper can be made into a rope strong enough to hang a man, and massive books be manufactured of a kind that a volume the size of an ordinary bible is "light as air."

Paper hats and coats are common as paper collars with us, and the soldiery wear paper folding hats, and, more remarkable still, when strong strips of paper of equal size are rolled into a kind of string and worked by hand into a net pattern, a garment can be made which will bear washing.

The *Pungolo*, of Naples, reports an interesting discovery at Pompeii, consisting of a number of wooden tablets with writings. They were found carefully arranged in an ivory box. The backs of the tables are smooth and unwritten upon, and their faces, upon which the writing is found, are surrounded with a kind of frame or border. They are either separated or tied together, book shape, with twine, in bundles of three and four. On the tablets thus bound together the writing is almost always in ink; but the characters on the single ones, which had been covered with wax, were engraved, and are still legible, though the wax has disappeared, as the sharp point of the style has cut into the wood beneath. The separate tablets contain receipts for payment of money, and bear the consular date with the name of the day and the month, and the amount paid. On the outside of the center tablet of those bound in book form is written an index of the names contained in the volume. It is entitled *perscriptio*, and is followed with a name in the genitive or dative. The tablets are evidently accounts, and from the way in which they are kept there can be no doubt that the spot where they were found was the site of a Roman banker's house. They were discovered in excellent condition, though the damp to which they had been exposed has rendered them very fragile. Those bound together are in the best state of preservation. Signor Fiorelli has given an account of the discovey to the Archæological Academy of Naples, and it is expected that it will throw much light upon the conduct of business transactions under the empire.

Questions and Answers.

WEIGHT OF IRON BALLS.

A correspondent, writes: "Please give me scale of weights; for instance, how large a ball, &c., must I make to weigh a certain number of pounds?"

We suppose our correspondent means: What is the relation between the weight and size of metal balls for counter balances, &c? If so he will find the information he desires in the following table:

WEIGHT OF IRON BALLS.

Diameter—Inches.	Weight—Pounds. Cast Iron.	Wro't Iron.
1	·14	·147
1⅛	·20	·2063
1¼	·27	·2870
1⅜	·37	·382
1½	·47	·496
1⅝	·59	·6306
1¾	·74	·7876
1⅞	·91	·9688
2	1·10	1·176
2⅛	1·32	1·410
2¼	1·57	1·674
2⅜	1·84	1·969
2½	2·15	2·296
2⅝	2·49	2·658
2¾	2·86	3·056
2⅞	3·27	3·492
3	3·72	3·968
3⅛	4·20	4·484
3¼	4·72	5·045
3⅜	5·29	5·649
3½	5·80	6·301
3⅝	6·56	7·000
3¾	7·26	7·750
3⅞	8·01	8·550
4	8·81	9·405
4⅛	9·67	10·320
4¼	10·57	11·280
4⅜	11·53	12·310
4½	12·55	13·390
4⅝	13·62	14·540
4¾	14·76	15·750
4⅞	15·95	17·030
5	17·12	18·370
5⅛	18·54	19·786
5¼	19·93	21·260
5⅜	21·39	22·820
5½	22·91	24·450
5⅝	24·51	26·160
5¾	26·18	27·940
5⅞	27·91	29·800
6	29·72	31·740
6⅛	31·64	33·760
6¼	33·62	35·880
6⅜	35·67	38·070
6½	37·80	40·360
6⅝	40·10	42·730
6¾	42·35	45·190
6⅞	44·74	47·750
7	47·21	50·400
7⅛	49·79	53·150
7¼	52·47	56·000
7⅜	55·23	58·940
7½	58·06	62·000
7⅝	60·04	65·140
7¾	64·09	68·400
7⅞	67·25	71·760
8	70·49	75·240
8⅛	73·85	78·820
8¼	77·32	82·520
8⅜	80·88	86·320
8½	84·56	90·250
8⅝	88·34	94·280
8¾	92·24	98·450
8⅞	96·26	102·720
9	100·39	107·100
9⅛	104·62	111·650
9¼	108·98	116·300
9⅜	113·46	121·080
9½	118·06	126·000
9⅝	122·77	131·020
9¾	127·63	136·200
9⅞	132·60	141·500
10	137·71	146·900
10⅛	142·91	152·520
10¼	148·28	158·200
10⅜	153·78	164·100
10½	159·40	170·100
10⅝	165·16	176·250
10¾	171·05	182·600
10⅞	177·10	188·990
11	183·29	195·600
11⅛	189·60	202·5
11¼	196·10	209·2
11⅜	202·67	216·3
11½	209·43	223·5
11⅝	216·32	230·9
11¾	223·40	238·4
11⅞	230·57	246·1
12	237·94	253·9

To compute the weight of a spherical shell, subtract from the weight of a ball which has the outside diameter of the shell, the weight of a ball which has its inside diameter. To find the weight of a steel ball, add 1 per cent. to the weight of an iron ball of the same diameter.

Value of Rifle Practice to Soldiers.

The *Army and Navy Journal*, while admitting that "the conditions of firing on a range and in battle are by no means the same morally or physically," thinks that rifle practice cannot fail to be valuable to soldiers, and that even long range shooting, by encouraging a spirit of rivalry at short ranges, has a special value in training militia men and soldiers of the regular army. General Sherman's account of the millitary operations preceding his march to Savannah show that many of the more important engagements of the war were fought by heavy skirmish lines, where the shooting was of essentially the same kind as is practiced at a rifle range, the soldiers firing as individuals from "any position," and doing in this way the most effective work at the least risk to themselves. The history of all millitary operations of late years has shown the value of that general intelligence and ability as marksmen which makes it possible to form a whole corps or army into skirmish lines. The British Grenadiers, who in battle 100 years ago advanced in solid line under fire, presenting a broad and easily hit target to the enemy, have few imitators to-day.

Improvements in fire arms have since been made, which will, in the future, as in wars within the last decade, give back to the soldier some of his individuality, and make him, under inteligent direction, the arbiter of his own fate. The Hartford *Courant* says on this subject: "As to 'the good of it,' it can provide in our country our strongest protection against a foreign war. There is no nation in the world but would hesitate to attack another whose soldiers were practiced long range marksmen. Skill in accurate shooting would counterbalance lack of millitary discipline. Raw troops who know they can shoot will possess confidence which otherwise would only come of months of training."

Prices of Metals.

BY H. C. BOLTON, P. H. D.

A paragraph bearing the above title has of late circulated extensively among scientific and pseudo scientific papers, the origin of which we have been unable to trace. The paragraph referred to gives the price per pound avoirdupois of 28 metals, beginning with indium, which is valued at $2520 per pound, followed by vanadium, ruthenium, etc., and terminating, of course, with iron. As it has reached us no authorities for the prices are given, nor is any statement made as to the sources of the information communicated.

The table abounds in gross errors, which has induced me to recalculate the prices, and at the same time to extend the list. Of course, the prices vary considerably according to the dealer and the country, whether Europe or America. The prices of many of the dearest may be considered also as "fancy prices," and actually a whole pound of some of the metals named could hardly be obtained at even the extravagant figures annexed. In compiling the following table we have taken the prices of the rarer metals from Trommsdorff's and Schuchardt's last price lists; we have assumed the avoirdupois pound as equal to 453 grammes, and the mark as equal to 24 cents, gold.

An inspection of the table is not without interest; it is evident that the prices of the metals bear no relation to the rarity of the bodies whence they may be derived, for calcium, the third in the list, is one of the most abundant elements. Even that excessively sparingly distributed metal, indium, the most recently discovered element, stands tenth in the list, below strontium. The metals of the alkalies seem to occupy a remarkably low place in the table.

S. and T. annexed to the price per gramme stands for Schuchardt and Trommsdorff respectively, and indicate the source of the data:

Metal.	State.	Value in gold per lb. avoir-dupois.	Price in gold per gramme.	Au-thor-ity.
Vanadium	Cryst. fused	$4792·40	$10·80	S.
Rubidium	Wire	3261·60	7·20	S.
Calcium	Electrolytic	2446·20	5·40	S.
Tantalum	Pure	2446·20	5·40	S.
Cerium	Fused globules	2446·20	5·40	S.
Lithium	G'obules	2228·76	4·92	S.
Lithium	Wire	2935·44	6·48	S.
Erbium	Fused	1671·57	3·95	S.
Didymium	Fused	1630·08	3·60	S.
Strontium	Electrolytic	1576·44	3·48	S.
Indium	Pure	1522·08	3·36	T.
Ruthenium		1304·64	2·88	T.
Columbium	Fused	1250·28	2·76	S.
Rhodium		1032·84	2·28	T.
Barium	Electrolytic	924·12	2·04	S.
Thallium		738·39	1·63	T.
Osmium		652·32	1·44	T.
Palladium		498·30	1·10	T.
Iridium		466·59	1·03	T.
Uranium		434·88	·96	T.
Gold		299·72	..	..
Titanium	Fused	239·80	·52	..
Tellurium	Fused	196·20	·43	..
Chromium	Fused	196·20	·43	..
Platinum	Fused	122·31	·27	..
Manganese	Fused	108·72	·24	T.
Molybdenum		54·34	·12	T.
Magnesium	Wire and tape	45·30	·10	T.
Potassium	Globules	22·65	·05	T.
Silver		18·60	..	..
Aluminum	Bar	16·30	·036	S.
Cobalt	Cubes	12·68	·028	S.
Nickel	Cubes	3·80	·008	T.
Cadmium		3·26	·007	T.
Sodium		3·26	·007	T.
Bismuth	Crude	1·95	·0043	S.
Mercury		1·00	..	..
Antimony		·30	..	T.
Tin		·25	Prices taken from recent quotations.	
Copper		·22		
Arsenic		·15		
Zinc		·10		
Lead		·06		
Iron		·01⅛		

Facts Worth Remembering.

The *Industrial-Mechanical Journal* is responsible for the following collection of items under this head. We cannot vouch for them, but we do know that castor oil is very good for leather, especially boots and shoes:

To guard belting against being gnawed by rats, annoint it with castor oil.

Sweet oil, rubbed on the skin, is said to be a sure antidote for ivy poison.

A putty of starch and chloride of zinc hardens quickly, and lasts, as a stopper of holes in metals, for months.

Glycerine paste for office use may be prepared by dissolving one ounce of gum arabic and two drachms glycerine in three ounces of boiling water.

To bleach glue, soak in moderately strong acetic acid for two days, drain, place on a sieve and wash well with cold water. Dry on a warm plate.

To cut glass to any shape without a diamond, hold it quite level under water, and, with a pair of strong scissors, clip it away by small bits from the edges.

To detect sulphuric acid in vinegar, put in a little starch. Then add a minute portion of iodine. If sulphuric acid be present, the starch will not take a blue tint.

It is said that dry rot in cellar timbers can be prevented by coating the wood with whitewash, to which has been added enough copperas to give the mixture a yellow hue.

Diamond cement, for glass or china, is nothing more than isinglass boiled in water to the consistence of cream, with a small portion of rectified spirit added. It must be warmed when used.

Iron may be cemented in wood by dropping in the recess prepared in the latter a small quantity of strong solution of sal-ammoniac. This causes the iron to rust, rendering it very difficult to extract.

To cement brass to glass, boil three parts of colophony with one of caustic soda and five of water. The soap of emulsion produced is mixed with half its weight of plaster Paris, zinc, white lead or prepared chalk.

Petroleum, constantly applied to the cutting tools, will enable the cutting of the hardest alloys with the same ease as steel tempered to straw color. The latter is far more easily worked by keeping the cutters moistened with a mixture of petroleum and turpentine.

It is said that by mixing salt with mortar, in the proportion of one peck of salt to three of mortar, while tempering, and coating the inside of chimneys with it, the adhesion of soot will be effectually prevented, and that the chimney will remain clean and white for an indefinite period.

A non drying cement of great tenacity, useful for fastening plates of glass so as to exclude air, but which may be easily separated, is formed by adding freshly slaked lime to double its weight of India rubber, and heating to about 400° Fahr., when the rubber will be converted into a glutinous mass.

Lake Superior Items.

The Marquette *Mining Journal* has the following notes on Lake Superior matters:

There has been some considerable talk lately to the effect that the Jackson mine would close up entirely this winter. We have information, however, that there is no probability of any such course being taken by the company. Just now more ore is being sent from the mine than at any other time this season.

The Erie mine, under the management of Capt. Trowell, is at present giving employment to about thirty men. The shaft has reached a depth of nearly forty feet, and a cross-cut is being made at the bottom to test the width of the vein. The ore taken from the shaft is first-class, and the local manager feels encouraged with the confident belief that he has a good mine.

The product of the Keystone for the month of July will be about 900 tons of No. 1 ore, all mined from the east or "old cut." At this point there was a narrow vein of very pure ore dipping under the hanging wall, and which was left until such time as it should be convenient or advisable to remove the rock. It is in this vein that the contractors have been at work since the renewal of operations in June, and sufficient work has been done to show that the vein widens as greater depth is attained, giving promise of a large body of ore where it was scarcely expected. The water has not yet been raised from the main shaft, but it is expected that the miners will be able to resume work at that point sometime during the coming week. In the west shaft the vein, which was passed in sinking in the hope of finding something more valuable below, is being followed up and yields some good ore. Shipments from this mine will hereafter be made *via* L'Anse.

It seems a little singular, but it is nevertheless a fact, that while some of our principal miners are stocking their No. 1 specular ores in Cleveland—being obliged to ship it in order to carry out their season contracts with vessels—the soft hematites of the district, which formerly went begging, find a ready sale, and seem to be eagerly sought after by furnacemen. The Rolling Mill mine has sold up to the fullest possible limit of production, and at both the Mc Comber and Winthrop operations have been renewed, which certainly would not have been the case were there no market for their production. In addition to this, we learn that the stock piles at the Salisbury and Excelsior mines, mined two years ago, have been sold, while the Jackson, Lake Superior and Lake Angeline continue their shipments of hematite. The exact reason for this state of things is more than we can definitely explain; but we presume it is to be found in the fact that the soft ores can be much more cheaply mined, and placed in the market at a much lower cost to furnacemen than the first-class ores, while recent work has demonstrated that, though not so rich, they make full as good iron for Bessemer steel and other purposes. Again, they form but a small portion of the entire product of the district, and it is possible that furnaces which are now buying the hematites have a stock of hard ores sufficient to last through the year now on hand, and desire the soft ores for mixture with them. However this may be, our hematites are certainly looking up, though the price at which they are sold leaves but a small margin over the cost of mining and transportation.

The following from the Philadelphia *Ledger* on the distribution of prizes at industrial exhibitions, is, in view of our coming international exhibition, certainly suggestive. It says: "Any one who carefully reads the report of the judges for the Franklin Institute Exhibition will notice a marked difference in the language and style of the judges in the different classes of articles exhibited and in the number of medals and certificates awarded in those classes. These differences which in the aggregate may amount to a lack of equity to some exhibitors, seems to be due to differences in the personal characteristics of the individual judges. A committee of shrewd, cautious men will be chary about giving prizes to any but the most deserving exhibitors, while one composed in the main of good natured, enthusiastic men will feel inclined to give silver medals for anything that happens to strike their fancy, and will not refuse a bronze or an honorable mention for the poorest display. The result of all this is that in some classes a great number of valuable medals were given and nearly every exhibitor mentioned, while in others no medals were awarded and very few of the articles mentioned in the report. As to each class of exhibits the awards are probably just, but, as a whole, it is very probable that the distribution of medals was not equitable. It would be impossible to find one man, or one working committee of men, able to pass judgment upon all classes of exhibits, nor could such man or committee do the work if either had the necessary ability, but some means should be taken to secure more uniformity in the standard than is generally made at public exhibitions." What it says of the Franklin Institute is true, so far as we know, of almost all exhibitions.

A new steel mill at Scranton is expected to be ready for operation on the 1st of September.

GEORGE GUEUTAL & SON,

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IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

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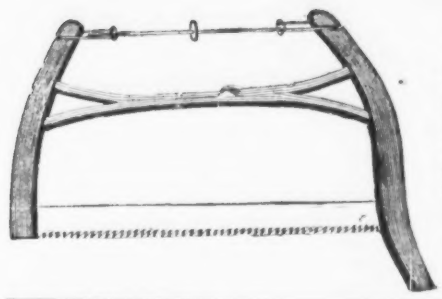

Elliptic Forked Saw Frame.

Patented June 28th, 1870.

The annexed engraving represents my ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

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PERFORATED CROSS-CUT SAWS

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THE SILVER STEEL

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PATENT HANDLES AND GAUGE INCLUDED.

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of **SPEED AND EASE**, is manufactured by **E. C. ATKINS & CO., Indianapolis, Ind.,** who are the

SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

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HARDWARE FACTORS.

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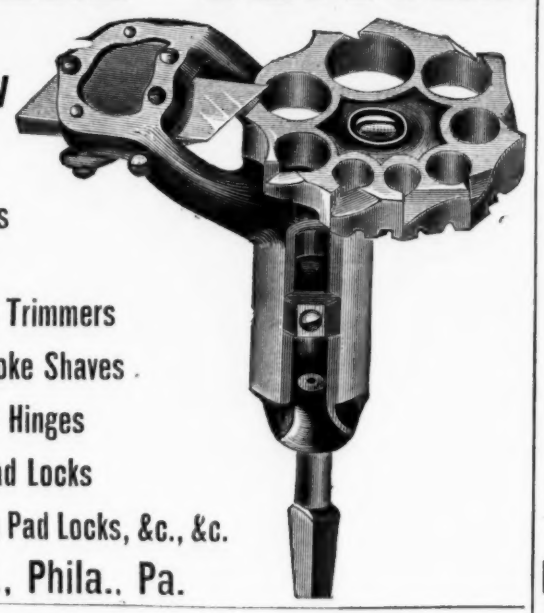

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The Florence Steel Skates.

"The Skate for the Million!"

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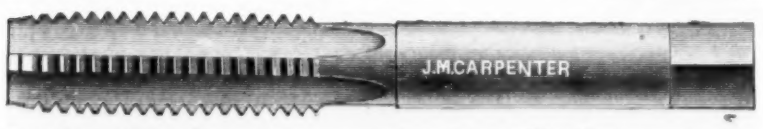
The Most Elegant and Perfect Skate in the Market.

☞ Send for Illustrated Price List.

Every Skate warranted Steel, and free from any Imperfection.



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Of every description, including

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Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

Telegram Dated Oct. 1st, 1874.

STATE FAIR, EASTON, PA.

To HENRY DISSTON & SONS:

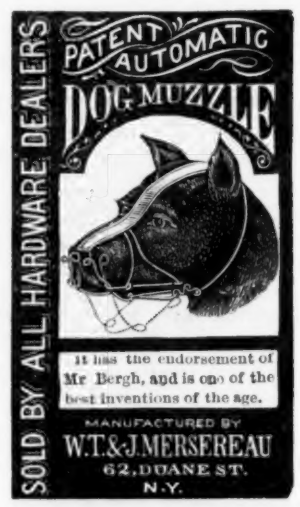
Philadelphia, Pa.

I want you to publicly test that challenge on Cross Cut Saws. Name time and place within thirty days. American Institute preferred. E. M. BOYNTON.

E. M. Boynton gave on Wednesday of last week an exhibition of what his Lightning Saw could do at the Pennsylvania State Fair, in which two men sawed through a sound oak log, 16 inches in diameter, in 17 seconds. Mr. Boynton informs us that his export trade is increasing, he having lately made large shipments of his saws to Australia and other distant markets.—*The Iron Age*, Oct. 8, 1874.

For fuller report of this exhibition see the *Easton Morning Dispatch* of Oct. 1st, 1874.

Henry Disston & Sons cannot furnish Lightning Saws. Why do they imitate mine?



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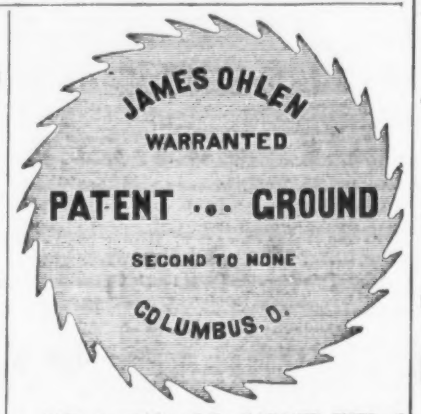

make a specialty of the LARGEST SIZES of **Circular Saws,** and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper.—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

Properly Hammered.—Great care is taken that no saw shall leave my works without due attention in this important particular. A saw too tightly strained upon the rim, or too loose in the center, cannot be successfully run—hence the importance of so hammering the saw as to effect equal strain in all its parts, and at the same time RUN TRUE. This department is under the personal supervision of myself, who has devoted over *twenty years* to the art of saw making.

I am sole proprietor and manufacturer of the celebrated **"Challenge" Cross-Cut Saw.** Price Lists of all kinds of saws sent on application.

JAMES OHLEN.

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Manufacturer of

ALL KINDS OF

SAWS

And Plastering Trowels,

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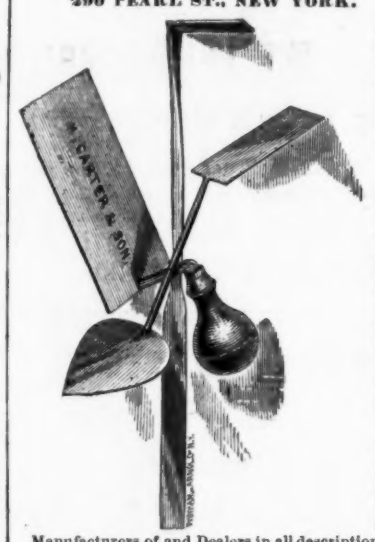

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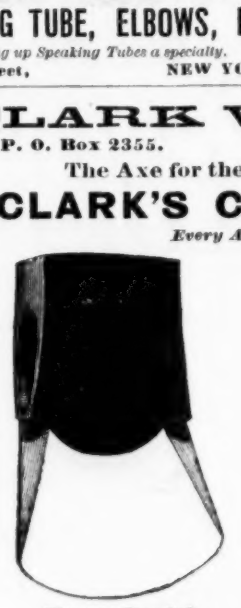
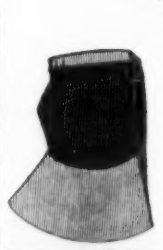
Every Axe fully Warranted.

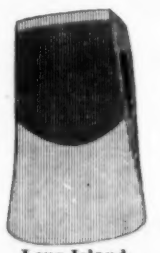


Western Beveled.

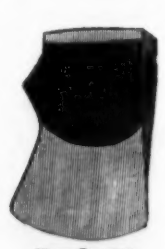
Kentucky.



Rockaway Pattern.



Long Island.



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BRONZED OR RED.

Price Per dozen..... $11 00 net cash. Beveled Axes. ..... 50c per dozen extra.

☞ Send a Sample ORDER.

PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Aug. 16, 1875.

The constant wet weather for quite a week past has very materially interfered with the trade, which is just beginning to show itself. The news of continued and widespread disaster to crops by storm and flood has created very considerable anxiety in regard to the grain trade, on which so much of our prosperity for the coming winter seems to hinge. As, however, the "worst comes first," generally, in crop reports, it is possible that the real damage is discounted, and that we will yet have a large surplus of grain for export, and a ready market at fair if not high prices. It is, at all events, clear that there is generally a better feeling among the mercantile classes, many of whom, from personal interviews with their customers or by correspondence, have received information of a hopeful character concerning the fall demands of the country, and the probable activity that will soon be exhibited. It is certainly to be hoped that this information will prove true. Whatever may be the case West, as to crops, it is clear that the average yield in Virginia will be much better than usual. Reports from the James River Valley counties indicate that the yield of wheat and oats has been unusually large; the corn crops is exceptionally good, and that of tobacco especially promising; the people of the section are more forehanded than at any previous time since the war. They are devoting themselves to agriculture, and particularly, in addition thereto, to a thorough examination of the varied and valuable minerals of their country. Great interest is taken by them in the formation of a Bureau of Ores, as proposed in the correspondence between Mr. Britton, of Philadelphia, Mr. Barbour, of the Midland R. R., and Gov. Kemper, of Virginia. Some objection appears to exist to the establishment of such a bureau at Alexandria, as it is believed generally that it should be nearer the ore sections of the State; but the locality, once determined, all will gladly aid in contributions of their minerals. If this project is rightly carried out, both Michigan and Missouri will have to look to their laurels, for Virginia can show red oxides, specular and magnetic ores of equal richness, purity and abundance with either, and limonite superior to both. Her list of minerals is by no means exhausted with iron ores. She can add copper and gold, manganese, barytes, asbestos, corundum, plumbago, ochres of various kinds of fine quality, fine kaolin, pure silica for glass sand, and marble equal in color to Italian statuary stone. All these sources of wealth will be made known by means of such a bureau as proposed by Mr. Britton, and, properly managed, it cannot fail to attract capital to the State.

The Centennial continues to excite a lively interest here in Philadelphia, and, despite the difficulties in obtaining funds, progresses steadily.

The League Island Navy Yard here promises to be, when properly arranged, the finest naval station in this country at least. From a very interesting report on its present condition and future prospects published in the always accurate *Public Ledger*, I extract the following items of interest relative to the work. The buildings already erected, but not yet finished, are the Iron Plating Shop, 270x85 feet of pressed brick, and which will be connected with the Naval Constructor's Department, and the Yards and Docks Building. The latter is 230x65 feet of pressed brick with granite facings, and is nearly finished, a portion being occupied by the civil engineer of the station, Franklin G. Stratford. Opposite this will be the storehouse for steam engineering, to be 400x500 feet, and now being erected. In the rear of this is the engine house containing an engine of sufficient size to furnish the entire power for the station, and near by the Fire Department house with two steamers and a supply of hose ready for use. It is proposed to divide the entire island into squares of 400x200 feet, of which squares there will be sixty to be used by the various departments for an infinite variety of purposes. The floating dock basin projected will be 31 acres in extent; a repairing basin of 30 acres; a storage dock basin of 7 acres; a fitting out basin of 40 acres, etc. The floating dock basin will be on the Delaware and connected by 20 railroad tracks with other departments. The quay wall on the river front will have a water depth of 28 feet, while the river here is 2800 feet wide. The main avenue will be 125 feet wide—an avenue parallel with the river 80 feet, and all other streets and thoroughfares 75 feet. The plan comprises a system of floating docks combined with shallow basins and railroad tracks for raising ships and taking them on shore, and by this means a large number of ships can be provided for at once. When all the dredging and digging is completed there will be an aggregate of 155 acres of deep water. The area will be divided as follows: The Bureau of Steam Engineering will have 19 acres space; the Coal Bureau, 36 acres; the Bureau of Ordnance, 24 acres; the Bureau of Provisions, 8 acres; the Bureau of Yards and Docks, 17 acres, and the Marine Corps, 21 acres. Of the money appropriated and still to be expended, $1,887,000 will be for the Bureau of Construction, $345,000 for that of Steam Engineering, $200,000 for that of Equipment, $115,000 for that of Provisions, and $115,000 for that of Ordnance. There will be a large ropewalk and storehouses for sails, rigging, etc., etc. When thoroughly completed, the League Island naval station will afford as finely arranged and as convenient a yard for the purpose as can be found in the world.

Philadelphia has had, during the week, to mourn the death of one of her most conspicuous and most profoundly honored citizens, in that of Horace Binney. Dying at the unusual age of 96, he leaves a record conspicuous for eminent legal knowledge, forensic ability, old-school integrity, and comprehensive ability, which few in the history of any country can surpass. He was a ripe scholar and a leading member of the bar three-quarters of a century ago; he seemed to be a connecting link between the far past and the present. Seventy years ago he sat in the Legislature of Pennsylvania, and it is 43 years since he left Congress. Preferring the dignity of professional life, although celebrated in some of the most notable cases of the country, he never collected his arguments or speeches, and at his death leaves to his fellow citizens an example to all classes.

Furnace No. 1, of the Westerman Iron Company, was blown in on Wednesday morning, and is starting off in a manner perfectly satisfactory to the managers. Furnace No. 2, under the efficient management of Mr. A. B. Llewellyn, is averaging about 35 tons of No. 1 foundry iron per day, and when No. 1 gets in good working order, Mr. L. expects to be able to produce at least 70 tons of No. 1 iron per day at the two furnaces.—*Sharon, Pa., Herald*

Crampton Furnaces.

The *Engineer* has the following item in regard to these furnaces and their introduction in the North of England:

Whilst some ironmasters are seeking to remove certain of their difficulties by adopting puddling furnaces in which the labor of the puddler is supplemented by mechanically moved tools, there are others who, going to the root of the matter, appear still determined to adopt some method of puddling iron wholly by machinery. It was some time ago determined in a few cases in the North of England to supplant the furnaces with which Mr. Danks name is associated, by those invented by Mr. Crampton, and it is now made known that one firm has got five Crampton furnaces at work. The concern in question is that of Carlton, near Stockton-on-Tees, owned by the North of England Industrial Iron and Coal Company, limited, of which Mr. H. C. Briggs is the chairman. This company has recently held its half-yearly meeting, and before the proceedings began, shareholders went over the works and watched the five Crampton machines in motion. Expressing their satisfaction at what they had seen, their interest was increased when during the meeting the chairman claimed for the directors that credit for practical wisdom which by some had been denied in relation to the statement which twelve months ago they made, to the effect that the Danks patent puddling furnace as originally constructed had signally failed to yield the profitable results fairly to be expected from the statements of the patentee. Determined, however, to find out a practicable means of mechanical puddling, the directors, "instead of wasting money for another twelve months, boldly took the bull by the horns and altered their mode of working to the system of heating by coal dust patented by Mr. Crampton." The board had not yet got over all the difficulties incidental to mechanical puddling but what the shareholders had that day seen showed that the board was proceeding satisfactorily toward attaining the desired results. Mr. Briggs claimed the later experience of other firms as confirmatory of the accuracy of the conclusions to which the board of the North of England Industrial Iron and Coal Company had earlier come, instancing that the Erimus Iron Company had introduced several alterations, and announcing that Messrs. Hopkins, Gilkes & Co., of Middlesbrough, had now put their men under notice to stop working the Danks machines. In a few weeks the members of the Iron and Steel Institute will have an opportunity of examining the means by which the Danks rotary puddlers have been made a success at the Ravensdale Iron Works in North Staffordshire; and those who may visit the Philadelphia Exhibition will see what is being done with the Danks by Messrs. Graff, Bennett & Co., of Pittsburgh, who now announce that the machine as adapted by their manager—Mr. John I. Williams—has so far satisfied them that they are now building four more, thus to make their whole plant ten, which is the same number, it will be remembered, which have been laid down in North Staffordshire. It cannot but come about that practical ironmakers shall be so far aided by mechanical engineers as to effect the puddling of iron wholly by machinery.

The Russian Circular Iron-Clad.

Mr. E. J. Reed, the well known English shipbuilding authority and ship builder, writes as follows in relation to the new Russian circular iron-clad, which has been recently making an experimental trip:

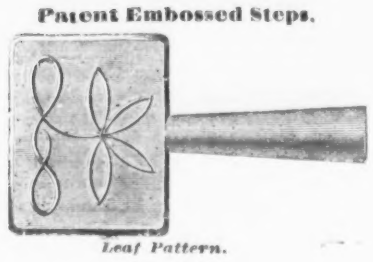
It will be interesting to many of your readers at home and abroad to learn that the first of the Russian circular iron-clads, the Novgorod, has recently made passages in the Black Sea which, to say the least, fully justify the imperial government in having adopted this form of vessel as one well adapted for providing very powerful naval defenses for certain purposes. After recently steaming from Nicholaief round the south of the Crimea to the Circassian coast, thence back as far as Sebastopol, and then to Odessa, this extraordinary vessel has, during the past week, performed what was probably her chief object by entering the sea of Azoff through the Straits of Kertch, where the depth of water is but 14 feet, and where no other European iron-clad carrying armor 11 inches thick and guns of 28 tons could possibly pass. I do not wish what I have previously said, or am here saying, to be construed as an approval of these circular iron-clads for all purposes and in all their details; but I certainly think the performances of the Novgorod are such as will excite the notice and admiration of many thoughtful persons beside ship builders, and will reflect great credit upon the imperial Russian government and their enterprising designer, Admiral Popoff. It is true that the Novgorod is not designed for and does not attain a high speed, but she has lately been steaming at eight knots, which is more than was intended, and she could have been made very much faster had she been increased in size. It must be remembered that, although carrying the heavy armor and guns already mentioned, she is a comparatively small vessel, being of but 100 feet in diameter, and having a total displacement of only 2500 tons, which is but one-half that of our Glatton, and much less than one-fourth of our Inflexible, or even our Minotaur. She has engines of only 480 horse-power. Her cost, if built under like conditions with other ships, would be roughly proportioned to her tonnage and horse-power, from which the cheapness of such a vessel may be readily inferred.

The furnaces of the Jaggar Iron Works, Albany, are to be relighted.

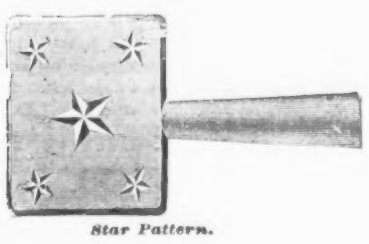
The Allentown, Pa., Iron Company will soon be ready to start up.

H. D. SMITH & CO., PLANTSVILLE, CONN.

Patent Embossed Steps.



Leaf Pattern.

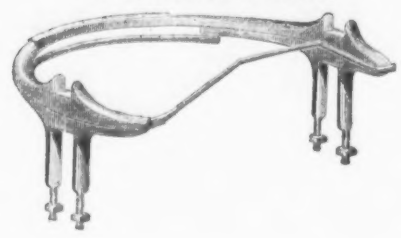


Star Pattern.

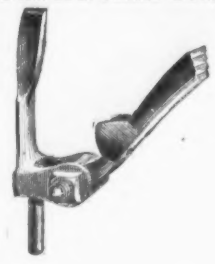
Established 1850.

King Bolt Yokes.

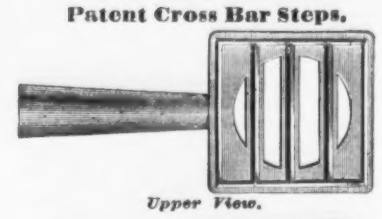
No. 6 Fifth Wheels.



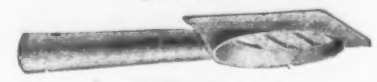
1871 Pattern Shaft Couplings.



Patent Cross Bar Steps.

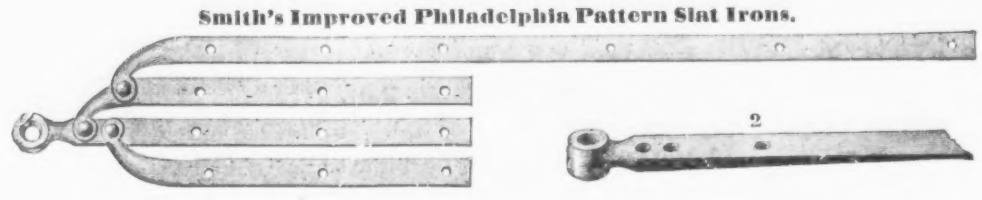


Upper View.

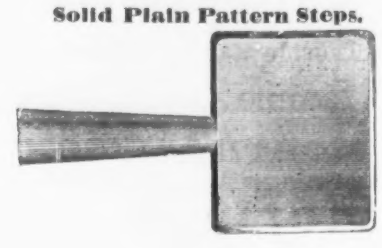


Lower View.

Smith's Improved Philadelphia Pattern Slat Irons.



Solid Plain Pattern Steps.



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CLARK, SMITH & CO.,

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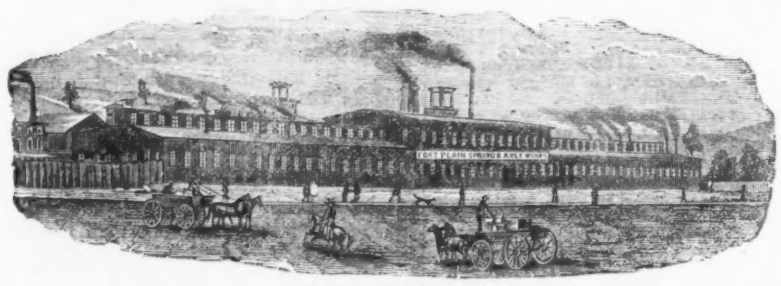

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Execute orders promptly for

Black, Bright, Tempered and Oil Tempered Springs,

Of any Pattern or Style. Also for **AXLES of any description, from a COMMON LOOSE COLLAR to the FINEST OF STEEL.**

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Clark's Patent Carriage Bolt.

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IRONS AND RODS FOR BUILDINGS.

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All Styles of

FANCY HEAD BOLTS.

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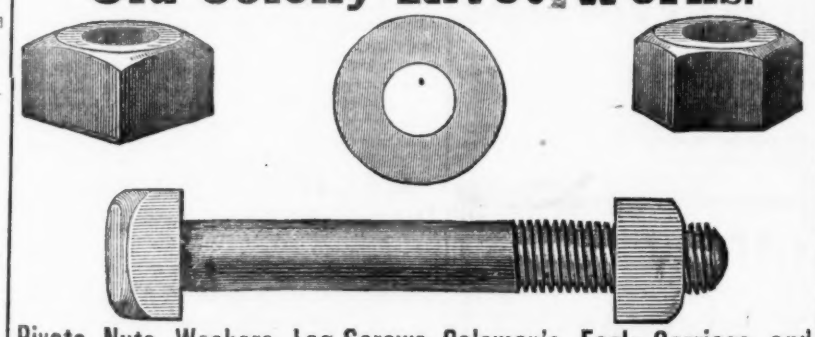
Old Colony Rivet Works.



Rivets, Nuts, Washers, Lag Screws, Coleman's Eagle Carriage and Tire Bolts, Axle Clips, Felloe Plates, Shaft Couplings, Stove and Machine Bolts, Driling Machines, Tire Benders, &c. Full stock constantly on hand.

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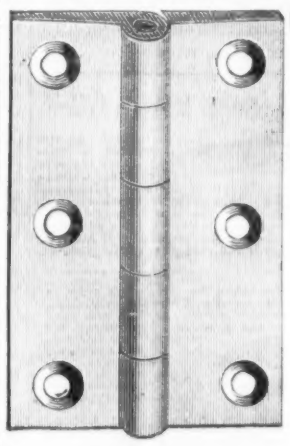
DAM, No 3 WATER ST, Gardiner, Me.

ALL GOODS WARRANTED.



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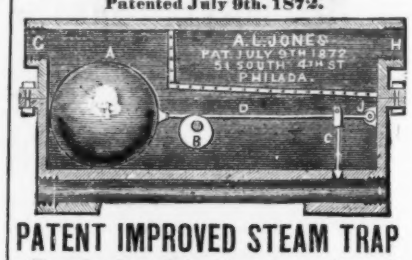

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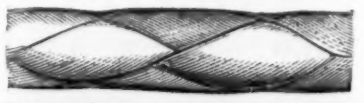

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The Iron Age.

New York, Thursday, August 19, 1875.

DAVID WILLIAMS - *Publisher and Proprietor.*
JAMES C. BAYLES - *Editor.*
JOHN S. KING - - *Business Manager.*

NEW YORK, January 2, 1875.

Until the 1st instant the postage on newspapers was paid by subscribers at the office where the paper was received, the yearly rates on the different editions of *The Iron Age* being as follows: Weekly, 40 cents; Semi-Monthly, 40 cents; Monthly, 24 cents.

Under the provisions of the new postal law, which went into effect on the 1st instant, prepayment at the office of mailing is required, at the rate of two cents per pound for the Weekly, and three cents per pound for the Semi-Monthly and Monthly, which will make the postage as follows on the different editions: Weekly, 50 cents; Semi-Monthly, 30 cents; Monthly, 15 cents.

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New Zealand	8 16	.....	4 08	.....	2 04
Brazil	8 68	.....	4 34	.....	2 17

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CHARLES CHURCHILL & Co., American Merchants, 28 Wilson Street, Finsbury, London, England, will receive subscriptions (all postage prepaid by us) at the following prices in sterling: Great Britain and France, 25/; Germany, Prussia and Belgium, 23/4; Sweden, 50/. They will also accept orders for advertisements, for which they will give prices on application.

City Subscribers will confer a favor upon the Publisher, by reporting at this office any delinquency on the part of carriers in delivering *The Iron Age*; also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

CONTENTS.

Argentiferous Galena on the Atlantic Slope.

The movement in lead, which we have noticed in a late issue, and the attention which has been paid to the development of the argentiferous galenas in France, suggests the fact that we have on the Atlantic slope of the United States numerous deposits of this metal, which are worthy of exploitation and the attention of capital. The reduction of argentiferous galena has, thanks to the progress of metallurgical science, become a matter of comparative ease and certainty, while the combination of metals is such as to ensure great profit. The constitution of the ore is rarely of such a character as to present unusual difficulty or expense, while in most cases the preliminary reduction is confined to simple smelting or the production of a "matte," which finds a ready market with the larger reduction works of this country and Great Britain. The constantly increasing demand for lead in all its uses, and the drain upon our bullion product, alike demand the development of all the mineral deposits which are accessible to transportation, and when near the consuming markets their value is naturally greatly enhanced. We have at various times called attention to the great mineral wealth of Virginia, and especially to the varied and valuable iron ores of that State, lying in the Valley of the James River, and extending back on either side of that river to, and over, the mountain ridges which run more or less nearly parallel with that stream. But the mineral wealth of this portion of the State is by no means confined to iron ore, vast as are the deposits of this mineral—so vast and of such purity, indeed, as to induce the belief that this valley is destined, at no very distant day, to exercise a very important influence upon the iron product of our country and upon our future export trade. Throughout the counties of Amherst, Appomatox, Nelson, Buckingham, Albemarle, Cumberland, Fluvanna, etc., are to be found, in addition to iron ores, gold, copper, argentiferous galena, manganese, plumbago, kaolin, baryta, steatite, etc., beside marbles of great beauty, and several varieties of ochres suitable for paint, with the purest of silica for glass uses. Indeed, such is the variety and abundance of such minerals that an examination of the country excites in the mind of the intelligent observer simply wonder that the sole efforts of the people of this region have been hitherto almost entirely devoted to the cultivation of cereals and tobacco. The region here noted is comparatively well supplied with transportation facilities. The James River and Kanawha Canal, following the windings of the James River, furnishes a cheap and convenient water way to Richmond and vessels capable of ocean navigation, while it touches some point of all, or nearly all, the counties herein mentioned. Through those lying north and east of the river and canal, runs the old Orange and Alexandria Railroad, now the Washington City, Virginia Midland and Great Southern Railroad, which affords transportation to the Potomac River and the whole Northern railway system; while those counties to the south and west are afforded similar facilities by the Atlantic, Mississippi and Ohio Railroad from Norfolk to Lynchburg, and thence with the Southwestern railway system. Such a region, with such minerals and transportation, good soil, timber, water and fine climate, undoubtedly merits the attention of all interested in the material progress of our country. It is in this region, within a few miles of railroad and canal, that we find argentiferous galena of a richness and quantity that attracts the miner, and geologically so situated as to insure the continuance of the ore to great depths. Of one of these deposits, and perhaps that most developed, we have information of interest and value to those whom it may concern, and which is here contributed. The area of this deposit, which includes several thousand acres at the points of outcrop of the veins, is situated on and between two mountain ridges, varying from 200 to 600 feet above the valleys. The entire surface is hilly, with small valleys interspersed, and supplied with abundant timber, thus offering advantages for mining and transportation of the ores. The geological structure of the region is of the primitive and transitory formation, consisting of granite graduating into gneiss, with chlorite of iron, mica, talcose and chloritic slates, and which usually are accompanied by the most valuable deposits of mineral. The strata runs northeast to southwest varying from 30° to 40°. Trap rock, which abounds as subordinate beds in the the talcose slate on the eastern side of one mountain ridge, and near which a gold mine was formerly and successfully worked, accounts for the very regular formation here visible. The veins here transverse several series of hills, running generally parallel, but sometimes intersecting one another, occupying always elevated ground and presenting everywhere by boulders and outcrops evidence of their continuity, and offering facilities for examination of their metallic contents. These veins, some eight or nine in number, present great regularity of structure, bearing 35° S. W. and N. E., and inclining some 83° W. N. W. with the horizon, and have well defined and regular walls of mica and talcose slates. The gangue consists of lead, silver, hornblende, quartz, calcareous and heavy spar, sulphates of barytes of extraordinary fineness, etc. At one point an opening has been made by a so-called branch, or leader, which has been exceedingly rich in argentiferous galena ores, and from which a considerable quantity has been taken, which yielded 74 per cent. lead, and from 10 to 24 ounces silver to the ton of ore. This vein is from 4½ to 5 feet wide, with an incline of 83° with the horizon, and running nearly parallel with the line of stratification of the enclosing walls or rocks. A vein bearing more westerly here gives, curiously, quite a different gangue, which consists of quartz, oxide of iron, pyrites of copper and iron, chlorite of iron, talcose and micaceous slate, but no spar to be seen. Although but slight openings have been made in this vein, the gangue and the whole vein strongly resemble the auriferous veins of the lower portion of the State. Another vein on the most eastern portion of the mineral bearing area runs from 45° to 58° S. W. and N. E., interrupted at one point by a layer of granite, but will probably return to the main course at another point. The gangue here consists of quartz, copper pyrites, lead and blende, and the vein has been opened by shaft, increasing in size as worked, but was abandoned, as rapidly improving, owing to water and imperfect appliances for mining. The width of the vein is here full 5 feet, with well-defined slate walls, and almost perpendicular. Careful examination of this area shows numerous other small veins or leaders, which, on working, and at greater depth, will undoubtedly join in one larger wider vein. The highly productive nature of the region as to mineral cannot be doubted, while the carelessly conducted and unskillful workings previous to the war resulted in material profit to those concerned. As is well known, these ores are found in this favorable gangue, which bears the same stratification of the great lead mines of Cornwall, England, and Grenoble, France, and in many places in Germany and other European mines. The geological formation certainly indicates an abundant supply of mineral at a proper depth, while it is possible that in some of the veins copper will be the predominating mineral. Moreover, such true veins are very different from layers or leaders, and with such surface indications, and as the ascertained increase of the metals in progressing depth is known, by veins of similar character, they rarely, if ever, disappoint the miner on exploitation. The workings as seen are mostly confined to the elevated hills, and have not reached the level of the valleys by a great distance. As is well known, no mineralogists expect any development of the richest mineral until this level has been passed. Indeed, in any gneiss formation abundant ores are not found above such level, and in this case those referred to are singular both in quantity and quality of the ore. Various and numerous analyses of these ores have been made by different chemists and metallurgists. The following will suffice for the information needed, viz:

No. 1, lead, 70 per cent; silver, 10 to 40 ounces.
No. 2, " 50 " " 10 "
No. 3, " 40 " " 9·91 "
No. 4, " 36 " " 21 "
No. 5 (from one vein), gold, $6 to the ton of 2000 lbs.; silver, $40.

These analyses, and the description we have given on the very best mineralogical authority, show that we have here on the Atlantic slope, within easy distance of rail or water transportation, in a good agricultural country, where labor is abundant, and all the accessories of successful mining at hand, a deposit of argentiferous galena rivaling in richness those of other localities, and certainly presenting, under proper workings, great prospect of profit. Like the other minerals of Virginia, this deposit has been either passed by with a sneer, or so badly worked in unskillful hands as to give no return at all commensurate with its value. But the time has arrived when these minerals are to bear their true value, and when, under proper capital, industry and scientific talent, Virginia will be made to take her proper rank in the mineral bearing regions of the world. As the iron ores of this valley supply, or will soon supply, the most desirable stock for the furnaces of the Atlantic slope—and, indeed, fully equal to the ores of Lake Superior—so may we look to the same region for other metals, as lead, silver and copper, in quantities which will not only make their development profitable, but add to the common supply, and, best of all, elevate the people of the region from a purely agricultural to an industrial and manufacturing population.

The mill operators at Fall River, Mass. have made an addition to the American vocabulary of slang, which is likely to be popular. They call wasting time in a strike, "taking a vacation." It is all very well to call it by so pleasant a name, but a "vacation" of this kind usually does the person who takes it a vast amount of harm, and entails upon his family and dependants privation and often suffering. Bad habits are acquired, self respect and independence are lost, debts are accumulated, and when the "vacation" is over the men are unfitted to resume work, and must engage in the task of getting out of debt, which is as discouraging and almost as hopeless as that of Sisyphus, which consisted in rolling a stone up hill but never reaching the top. "Taking a vacation" means a suspension of productive industry in a hundred different branches, a diminished consumption and consequent dullness of trade, an increase of lawlessness and crime, and general public injury. It makes but little difference what they call it; a strike is a strike, and experience has taught us to regard it as an unmixed evil.

Business Matters in Spanish America and Brazil.

Our bountiful crops and lower prices of manufactured articles will undoubtedly stimulate exportation to Spanish America and Brazil to an unwonted degree, during the ensuing twelve months. Next summer many of our customers in those countries will come to visit New York and Philadelphia on the occasion of the Centennial. The countries which they come from will be represented by their own exhibits, mostly of raw materials, and while they will be enabled to compare American productions with those of other parts of the world, especially Europe, we shall become better acquainted with their resources. The benefits that are to accrue mutually from this intimate and friendly intercourse will be both manifold and lasting, more so, probably, than any other practical result we may look forward to. While England, France, Germany, Holland, Belgium, Switzerland, Spain and Italy, have either the world at large or their own colonies for a market, secured centuries ago, the field which is geographically assigned to American industry, more than any other, lies at our doors, and in this field the Europeans have been and are still our successful competitors. They are so more by reason of habit, long relations, capital, cheap labor and facilities of conveyance, than by the superiority of workmanship. Of late years, the advantages of cheapness of manufacture which the Europeans possessed in their favor, enabling them to beat us in the near-by markets, have been much impaired; in many goods we are now competing with European manufacturers in their own home markets. The application of steam and machinery, cheaper raw produce, and superior finish, enable us to undersell them, while wages with them have risen rapidly. The colossal credit system which backed up Great Britain's relations with Spanish America, Brazil and India, has quite recently been productive of discouraging results, and we are now in a position to meet our most powerful competitors on more equal terms.

There is, consequently, everything to encourage us in this direction. We are the best and most important customers of Central and South America, inasmuch as we take in the aggregate more of their products than Europe does, with the sole exception of Chili and Peru. That in commercial intercourse we should gradually supersede the Europeans in those markets is, therefore, the most natural course of events.

Mexico, during the past five or six years, has made most praiseworthy material progress. The country has been politically quiet, and railroad lines have brought, and are bringing, the interior into close communication with the seaboard and the Rio Grande.

Central America, especially Costa Rica, has had but few revolutions of late, and having been singularly fortunate in the high prices which its products have brought, has now become a rich and desirable customer. Of Venezuela, Colombia and Ecuador, the former two have been less exempt from revolutions and earthquakes, but the accumulation of wealth in the hands of producers has been such, that their capacity of indulging in the amenities of civilized life has been much increased. Ecuador is progressing steadily, and Bolivia has also been getting on satisfactorily. Although from a political point of view, Peru, the Argentine Republic and Uruguay have quite recently been sufferers, and the last two have had their commercial and financial crisis to boot, the resources which they possess are such that a rapid recovery is already discernible. Chili has also traversed a financial crisis, but the country, politically quiet as it has been for twenty years past, is so rich that nothing can check its onward course. Brazil has been so much enriched by the rise in coffee and India rubber of late years, and is so progressive, that we may put her down as one of our most valuable customers. Cuba, though financially much crippled, still retains her prestige as the greatest sugar producing country, and as such remains our most valuable customer, taking more goods from us than any other country in America. Porto Rico has gone on advancing rapidly, and as a consumer of American goods is invaluable. San Domingo, though poor, has begun to give a good account of herself.

Aside from these Latin nations at our doors, we possess equally enviable business connections in Hayti, Jamaica, St. Thomas, Curacoa, Barbadoes, the French islands, Trinidad and Demerara, all exchanging desirable produce for nearly every article we raise or manufacture.

We shall have comparatively more visitors next year from the countries we have enumerated than from Europe. They know and feel that our material interests are closely linked together, and will be still more so in the future. But the moral hold which the people of the Great Republic have upon them is even greater than the material, for in the New World our influence is overshadowing, always excepting the remoter countries, such as Chili and the Argentine Republic. The Centennial will contribute essentially, however, to bring them all within the reach of our moral influence, and to mark a new era of moral and material advancement in this hemisphere. There is one thing which should not be lost sight of in connection with this question, however. We mean the contenting ourselves with moderate profits. We shall have to be prepared to sell cheap, the more so as so many goods of European make will be exhibited together with ours. Only on this condition can lasting connections be maintained.

Our Imports and Exports of Metals and Metal Goods.

The monthly reports of the Bureau of Statistics for June and the twelve months ended, therewith, constituting the fiscal year, makes the following showing of imports and exports of iron and metal goods:

IMPORTS.

	Quantity.	Value.
Iron and steel, and manufactures of pig iron, lbs.	120,395,943	$1,457,941
Bar iron, lbs.	53,104,467	1,728,137
Railroad bars or rails of iron, lbs.	4,396,243	69,284
Sheet iron, lbs.	10,715,666	852,426
Old scrap iron, tons.	32,409	792,772
Anchors, cables and chains, lbs.	5,783,982	339,806
Machinery	....	697,100
Muskets and other small arms	....	653,204
Steel ingots, bars, sheets and wire	....	2,539,906
Railroad bars or rails of steel, lbs.	89,867,418	2,863,027
Cutlery	....	1,440,418
Files	....	359,435
Hardware	....	311,807
Other manufactures of iron and steel	....	2,438,273
Lead, pigs, bar and old, lbs.	29,646,719	1,422,218
Lead, manufactures of	....	27,758
Metals, metal compositions and manufactures of, not elsewhere specified	....	1,187,382
Tin plates, cwts.	1,703,080	12,685,313

DOMESTIC EXPORTS.

	Quantity.	Value.
Agricultural implements, No.	24,533	$2,625,372
Brass and manufactures of	....	1,000,629
Carriages, carts and parts of	....	670,575
Clocks and parts of	....	1,222,914
Cars, railroad, No.	394	510,861
Coal, bituminous, tons	203,552	831,443
Coal, other, tons	315,793	1,789,126
Copper, ore, cwts.	51,305	729,578
Do., pigs, bar, sheet and old, lbs.	5,123,470	1,042,536
Iron, pig, cwts.	315,734	489,362
Iron, bar, cwts.	106,474	392,420
Steam engines, locomotive, No.	79	996,639
Machinery, not elsewhere specified	....	3,973,906
Nails and spikes	....	481,141
Edge tools, other than cutlery	....	676,827
Muskets and other small arms	....	5,510,226
Lead and manufactures of	....	429,309
Sewing machines	....	1,797,929

Our total imports for the fiscal year ended with June last were valued at $553,906,253, a decrease of $41,954,995, as compared with those for the previous year. Our exports during the same period were valued at $643,081,433, a decrease, as compared with 1874, of $49,947,721. There was also a decrease of $20,930,513 in the value of exports carried in American bottoms as compared with 1873–4.

Gilt Edged Ignorance.

It is by no means unusual for persons of good intentions to do a great deal of mischief through ignorance. An example of this comes to our notice this week in the case of a very pretty little book printed for free distribution by the Mutual Life Insurance Company, of this city. It is entitled "Plain Directions for the Care of the Sick," &c., and purports to be written "by a Fellow of the Colleges of Physicians, of Philadelphia, and physician to several of the charitable institutions of the same city." The part of this book which calls for severest criticism is that which relates to house drainage. We quote as follows: "If the production of these deleterious "(sewer) gases is constantly going on to "this extent, what is to prevent them "from passing up the attachments from "the sewer, through the local pipes, to "points at which the liquids were first introduced? The plumber and gas fitter "tell us the 'valves.' But the sinks "in the kitchen, the waste pipes from "wash-stands and bath-rooms have none. "Through these channels the gases from "the sewer have free access to the rooms "in which they are respectively located, "and from these rooms to all parts of the "house. A 'valve' is rarely neglected in "a closet. Now, what is it? The essential feature is a column of water three or "four inches in hight, in a bent tube. The "weight of this column of water is the only "resistance to the passage of a body of gas "from the sewer into the room. The force

"of the breath from the mouth of a strong "person will readily displace it. The "daily vibration in the density of the air, "as indicated by the barometer, is even "greater than this, and must surely permit "large volumes of deleterious gases to es- "cape into the house from the sewers of "the streets."

Now, without any disrespect to the author, we ask: Was greater nonsense ever put in print and circulated by any institution having the double object of advertising itself and doing good? But the gems of the book are a couple of illustrations, giving a sectional view of a city house, one showing a house badly plumbed, and the other showing how it should be plumbed. In the former the soil pipe is carried up to the highest basin, and none of the waste pipes entering it are trapped. The only trap in the whole waste pipe system is a running trap or U-bend in the cellar. This is the wrong method. The right method omits all traps except the one in the cellar, but carries the soil pipe up and into the principal chimney, in which it terminates some distance below the chimney top. The consequence of this would be that the sewer gas would escape through every untrapped wastes quite as readily as through the extension of the soil pipe; and what made its way up and into the chimney would, in the summer, be apt to be blown back into the house by the reverse drafts which are by no means uncommon during that season, especially at night, when the fires are out, and at all times when the temperature of the house is lower than that of the outer air. A plumber who should drain a house in this way, and carry the ventilating extension of the soil pipe into the chimney, ought to be tarred and feathered, and we venture to say such an arrangement will not be found in any house outside of England.

The fact of the matter is, our author, the intelligent "Fellow of the College of Physicians, Philadelphia." does not know what he is talking about, but his pretended knowledge and confidence of statement may mislead a great many people. He talks of valves, when such things are unknown in waste pipes; he omits traps wherever they are invariably put, and puts them where they are rarely, if ever, found in American houses. We are sorry to see a work containing so much valuable information, and which might be useful, spoiled by such mischievious nonsense as this.

No Dividends.

The *Ironmonger*, an English journal which has very queer ideas of this country and what transpires here, speaks of our National Association of Stove Manufacturers under the impression that it is a stock company, and that its semi-annual conventions are stock holders' meetings. Having got this idea from reading the reports of their meetings, it must have considered these documents very interesting if not amusing. But the funniest part of it all is that it quotes Mr. Jewett's words of encouragement and confidence in the future, as the apology of the president of the company for his inability to announce the division of a satisfactory semi-annual dividend, and thinks the stockholders would rather hear that the association had made a profit than listen to poetical descriptions of clouds and sunlight effects, as seen from a New England mountain top. Its article is too good to be lost, so we quote from it as follows:

We have just received an American paper containing a report of the half-yearly meeting of the "National Association of Stove Manufacturers." The president admitted that poetry and sentiment are not in the public mind intimately associated with the manufacture of stoves, but that he could not forbear making excursions into that region. He related an incident which had exerted a great influence on his career as a stove manufacturer. "Some thirty years ago," says the president, "I found myself standing in the bright sunshine of a July day on one of the highest mountains in New England. I could overlook three States, and suddenly I saw a cloud gather and rain began to fall. Above me was the clear azure sky; below me Lake Champlain, the Adirondacks, the White Mountains and the pleasant hills and valleys of Vermont, dotted here and there with villages and spires. The sun shone on the top of the bank of cloud and made it radiant; beneath I knew it was black and dismal. One-third of the horizon was blotted out, and two-thirds were glorious. I thought then, as I have thought many times since, that if one could always occupy a position of sufficient elevation, he would recognize the fact that clouds are always beneath the man who looks upward to the source of light, and that never more than one-third of the horizon is shut out of view. The cloud has its mission as well as the sunshine. Let us learn wisdom from each." It might be that such sublime language was used to lessen the disappointment of the shareholders in bearing some temporary "cloud" overhanging the trade. Certainly half-yearly meetings of American companies are prolific with sentiments such as those uttered by Mr. Jewett. Is it any wonder that American manufacturers should prosper, fed on such exalted language as this? Imagine a director of the Canadian Oil Wells or Phœnix Bessemer Company expatiating in this manner on the "clouds" which have recently fallen on those two companies. We are afraid, however, that such an abundance of prosaic words would be entirely lost on English shareholders. They are only too eager to hear what is the declared dividend in preference to listening to mere figures of speech.

When the National Association of Stove Manufacturers begins to declare semi-annual dividends, we don't think Mr. Jewett will have any occasion to indulge in "mere figures of speech." It is not likely to do so this year, however.

Report upon the Eames System of Furnace Working with Petroleum.

BY PROFESSOR HENRY WURTZ.

(Concluded.)

THE CHARACTER AND QUALITY OF THE IRON.

The special tests that have been made, in the oil furnace operated on the Eames system, in Jersey City, have been chiefly of one kind; selected because deemed to furnish the severest general test that could be devised—namely, the piling of refuse scrap iron, for reheating and rolling into boiler iron. The material thus employed has been chiefly composed of fragments of old, worn out boilers, many pieces having the boiler scale still adherent—no means being employed to detach it. This boiler scale being largely sulphate of lime, with phosphates, etc., nothing could be introduced into a furnace seemingly better calculated to frustrate all efforts to weld the mass again into any useful condition of coherent lamination. Hence a frequent remark of experts, that if the petroleum flame would make this stuff into anything useful, we might expect everything from it. The figures of Professor Thurston's tests of the plate, given below by him, cannot but be regarded as very remarkable.

MECHANICAL LABORATORY,
DEPARTMENT OF ENGINEERING,
STEVENS INSTITUTE OF TECHNOLOGY,
HOBOKEN, N. J., July 31, 1875.

Professor HENRY WURTZ—SIR: We send you herewith the records of the tests recently made, in the Mechanical Laboratory, of specimens of iron made by the Eames process from mixed scrap, and marked No. 430 to 436, consecutively.

The specimens numbered 430, 431 and 432 were, by some mistake, sent us with square corners, and tore apart at those points of weakness before reaching their maximum resistance to tension. We are, therefore, only able to give their successive stresses and extension within the limit of ultimate resistance.

The remaining specimens were properly shaped, and the results given may be regarded as accurate. The densities were very carefully determined, and are valuable as indicating the specific gravity of this peculiar quality of metal.

The results of these tests of scrap boiler plate, and the inspection of the fractured specimens, indicate that the method of heating and working adopted by Dr. Eames secures a very perfect elimination of impurities and consequent uniformity and perfection of weld.

The proof strain is unusually high, and this, with the specific gravity recorded, indicates, I should conclude, great homogeneity and compactness of material.

Such high proof stress is rarely observed in boiler plate. I should suppose that such metal would make good fire-box iron, but should hesitate to recommend a mixed scrap plate for that purpose until after extended trial

The ultimate strength is quite up to the average of boiler plate, and exceeds that of a large proportion of the iron usually found in market; it is satisfactory as the result of reworking such scrap as was used here.

The extension is much less than is obtained from the more ductile and softer irons, but specimens 434 and 435 show that even this hard scrap plate may be given a fair degree of extensibility.

No. 433, which is a piece of plate made from the bloom by this same process, and introduced here for comparison, shows the same peculiarities of structure and of resistance, and indicates those peculiarities to be characteristic of the product of this method of working.

The successive extensions, as the load was increased, indicate well the behavior of the metal under loads exceeding its limit of elasticity.

I regret that I have had no opportunity to examine iron made by this process into bar, or metal of a higher grade originally. The specimens furnished being all of thin plate, they could not be tested in the autographic machine, and we cannot, therefore, furnish strain diagrams produced automatically.

It gives me pleasure to be able to state that I have been very favorably impressed with the arrangement adopted by Dr. Eames. The work done by his process is very satisfactory, so far as I have been able to observe.

The main principle of using a gaseous fuel, derived from a liquid hydro-carbon, has been one which I have, for many years past, urged as one of the most promising methods of securing a flame of high temperature and of great purity—such as is needed in the production of fine grades of iron.

I should regard its commercial success as one of the most promising features of metallurgical progress. Very respectfully,

(Signed) R. H. THURSTON.

RECORDS OF TESTS BY TENSION, OF IRON MADE BY THE EAMES PROCESS.—MECHANICAL LABORATORY, DEPARTMENT OF ENGINEERING, STEVENS INSTITUTE OF TECHNOLOGY.

Material: Rolled Iron—Investigation of Tensile Strength per Square Inch Area.

Name.	Laboratory No.	Stresses. Proof.	Stresses. Ultimate.	Proof Load per Square Inch Area of Original Fractured Section. P	Proof Load per Square Inch Area of Original Fractured Section. F	Breaking Load per Square Inch. Original Fractured Section. T	Breaking Load per Square Inch. Actual.	Extension. Ratio to Original Length.	Extension. Ratio to Original Diam.	Specific Gravity. S. G.	Modulus of Resilience. W
Iron made by Eames process.	430	7,860	....	24,530	37,307	....	0·256	0·052	0·305	7·58	....
" " "	431	9,270	....	34,333	40,942	....	0·325	0·065	0·393	7·72	....
" " "	432	7,245	....	27,900	28,674	....	0·113	0·020	0·253	7·65	....
Charcoal iron for comparison.	433	8,670	13,905	34,039	48,025	....	0·05	0·011	0·078	7·78	....
" " "	434	10,000	13,905	38,872	53,403	....	0·15	0·033	0·236	7·78	....
" " "	435	12,000	13,905	41,126	60,484	....	0·50	0·111	0·78	7·73	....
Iron made by Eames process.	434	8,390	....	38,560	40,086	....	0·13	0·029	0·205	7·65	4067·1 ft.-lb.
" " "	434	10,000	....	40,000	47,618	....	0·38	0·084	0·608	7·72	4306·6 ft.-lb.
" " "	434	12,000	....	48,000	57,334	....	0·58	0·128	0·908	7·72	4387·3 ft.-lb.
" " "	435	12,570	12,570	29,621	37,665	50·2·0	0·10	0·022	0·102	....	....
" " "	435	10,000	....	37,650	47,081	....	0·23	0·051	0·238	....	....
" " "	435	12,000	....	44,432	56,497	....	0·63	0·140	0·646	7·70	4738·3 ft.-lb.
" " "	436	13,740	13,740	31,606	35,148	50,574·7	0·08	0·018	0·172	....	....
" " "	436	8,325	....	37,992	42,169	....	0·17	0·037	0·365	7·67	1066·4 ft.-lb.
" " "	436	10,000	....	....	....	....	....	....	....	....	....
" " "	436	11,490	11,490	....	....	43,231	48,452	....	....	....	....

Fig. 3.—PRINTS MADE DIRECTLY FROM THE LAMINÆ OF BOILER-PLATE, DEVELOPED BY ETCHING, BY PROFESSOR HENRY WURTZ.

It was thought advisable by me to endeavor to supplement Prof. Thurston's tests by some experiments to develop the uniformity and homogeneity of weld and lamination, obvious to all experts, produced by the petroleum flame; and I determined, therefore, to attempt to make the iron put itself on record; a thing which has not, I believe, been accomplished before, except in cases of cast iron specimens. I succeeded very well in etching polished edges of the sheets so as to obtain electrotypes from them, and the results are herewith presented in figure 3. The impressions lettered A, B, C and D are from the petroleum iron, and E and F from clean, selected pieces of the best of the used boiler scrap, from which the piles were made up. [The unsoundness and really frightful internal irregularities developed in these latter pieces of plate have surprised me much, even considering that it came from a worn boiler, and I must desire to make further examinations of new commercial boiler sheet by this method; a method of testing which, I would submit, should be universally practiced, now that its utility has been made so manifest. It will be of interest to add that the irregularities developed in the pieces of broken boiler sheet by the etching were scarcely, if at all, visible to the eye on the polished edges of the specimens, before the corroding agent was applied; the surface being quite passably sound and uniform. This makes the result of the etching operation more remarkable. My supposition is that the irregularities were developed by the existence of imperceptible fissures, due to lack of original perfect welding, into which the corroding liquid penetrated, and could then eat out on both sides, as can be readily understood].

FURTHER FACTS AND FIGURES; ECONOMY, ETC.

It was quite easy to determine with precision, with the arrangements at Jersey City, the relations of consumption of oil to iron produced, and time, labor and material occupied, in any special case. The oil was fed from a tank sunk in the ground, which had a horizontal section throughout of four feet square. Each inch in depth, therefore, corresponds to 2304 cubic inches, or, closely enough to 10 U. S. gallons of 231 cubic inches. By gauging with a graduated rod each hour, therefore, the hourly consumption of oil was readily followed up. It was thus determined by me that, starting with a cold furnace and boiler full of cold water, 45 minutes was a maximum time, with oil fed at the rate of 30 gallons per hour, or 22·5 gallons in this time, to bring the whole fire-space to a dazzling white heat. Six piles of scrap, averaging 500 lbs., or 3000 lbs., in all, being then introduced, 35 minutes more, at the same rate of consumption, not only brought the piles to a high welding heat, but raised the steam in the boiler to 90 pounds pressure, being that required to operate the rolls. The time required, after the furnace was heated and steam up, for each charge of 3000 lbs. averaged, at most, 80 minutes; and, as the brickwork became heated throughout, it was apparent that the feed of oil might be somewhat diminished, as will be readily understood. Thus, in a working day of 10 hours, just *seven* such charges could be worked off, averaging 2500 lbs. of rolled iron each; total, 8 tons per day of boiler sheet from one such furnace, with an average consumption, as a maximum, of 30 gallons (200 lbs.) of oil per hour, or 300 gallons (2000 lbs. in all), worth, at present prices, $16·50. To this must be added, however, the fuel used under the generator and small supplementary boiler, which together was 500 lbs. per day, worth, say, $1·20, and making $17·70 for fuel per day in all, or $2·22 per ton of finished sheet. [It is admissible that one generator and one small boiler will operate several furnaces—the inventor says *five*. If we say *four*, it will diminish the small addendum of cost; and it is, therefore, fair to say $2·10 as a maximum fuel cost per ton of sheet.]

As to working this furnace with coal, it was ascertained from the testimony of the operators (taken under oath, at my request) that by keeping up the fire all night, so that a heat could be had at a reasonable time in the morning, the maximum product of finished sheet might be, with superior work, allowing 90 minutes for each heat, *six tons*,* with a consumption of at least 5½ tons of coal = 12,320 lbs., or 2053 lbs. of coal per ton. Thus coal, rated at $5·50 per ton *in the fire*, would be a fuel cost of $5·04 per ton of iron, as against $2·10 for oil.

To get the comparative effective work per pound of oil and coal, we must deduct from the 2053 lbs. coal per ton of iron the coal used in making the petroleum iron in the two small extra fires—63 lbs. per ton, which brings it down to 1990 lbs. coal against 250 lbs. oil per ton, or a ratio of 8 to 1—justifying my maximum estimate in a previous paragraph, at least for this special kind of siderurgic work, on an ordinary furnace hearth.

As the effective work of coal is nearly doubled by the use of the Siemens regenerators, this disparity must, in that case, be reduced one-half, this still leaving a clear margin of economy of cost of just 20 per cent. in favor of the oil; but considering the heavy cost of the Siemens or Siemens-Martin plant, and the comparatively trifling cost of that of Eames, this latter comparison is far from being a just one. There can be no advantage with the gas furnaces and regenerators on the score of "cutting" the iron, as the same elements of purity and manageability of the flame exist in each.

I have in hand statements from the inventor, made at my request, as well as sworn statements and estimates, made also at my suggestion, by the furnacemen,† which I desired to compare with my own estimates and figures as above. I do not find enough substantial variation to justify in my mind the occupation, on this occasion, of space with these documents. The general tenor of those of the men is rather more in favor of the oil side of the question than I have made it above. One statement made for me (also, at my request, under oath) by the engineer Charles J. Bennett, of Jersey City, a man of much intelligence, I must not fail to quote. On one occasion, in February last, "steam was raised to a pressure of 90 lbs., with oil, in 2 hours—the brick work enclosing the boiler being coated with ice in places 2 inches thick—from cold water." His previous experience with coal, which he adds, is that "under the same circumstances, it would have required between 6 and 7 hours, and the consumption of from 2½ to 3 tons of coal to accomplish the same object.." Mr. Bennett being deemed a thoroughly reliable man, and having made this statement for me with care and deliberation, we shall be forced to admit here, if we take the statement as it stands, that in heating up and steaming up a cold furnace and boiler, the maximum feed of oil possible in two hours being, say, 70 gallons, or 467 lbs. (which I was told by the foreman was as much as could be burned well in the time) this has not only done the work here of at least 2·5 tons —5600 lbs. of coal—that is, making 1 lb. oil = 12 lbs. coal—but has done it in less than one-third of the time; making a pound of oil the effective equivalent in this case of some 36 lbs. of coal. This can only be believed by admitting a waste or effective loss of at least 90 per cent. of the coal, through imperfect combustion or other causes under these special (and of course exceptional) circumstances.

PUDDLING ON THE EAMES SYSTEM.

Not having personally witnessed the experiments which were made a year or more since, in Providence, R. I., in which the Eames generator was applied to an ordinary puddling furnace, I can but incorporate statements of others relative to this work. The following statement is authorized and its accuracy vouched for by Dr. Wm. F. Channing and C. H. Perkins, Esq., well known and highly esteemed citizens of the city of Providence:

"The experiments in puddling at the horse shoe works were very satisfactory, the material used being old cast iron scrap. Each charge, weighing 500 lbs., was converted in about 45 minutes, consuming about nine gallons of petroleum. Mr. Bell, before a recent committee on coal in the English House of Commons, estimates that five and a half tons of coal are required to produce one ton of finished iron from the ore. The American estimate is usually six tons of coal, nearly three tons being consumed in the blast furnace, and at least one and a half tons in the puddling furnace, to every ton of iron."

Other experiments were made at these works in "busheling" scrap iron. In reference to these, the following statement is authorized by the same gentlemen:

"The time usually required to heat a bushelling furnace, from the cold, with coal, at the Rhode Island Horse Shoe Works, may be stated at seven or eight hours, after which four heats an hour can be obtained. With the petroleum vapor, the furnace could be heated from the cold in about thirty-five minutes, after which six heats an hour could be obtained, and six balls produced, weighing about 175 lbs. each, or an hourly production of 1050 lbs. of iron.

"The amount of petroleum consumed in doing this work averaged about twelve gallons an hour. About 500 lbs. of anthracite were burned per day under the generator and superheated during these experiments with a single furnace; but, as the generator was large enough to supply five furnaces, it is estimated that 150 lbs. of anthracite per day would be sufficient to vaporize and convert the petroleum required for each one of several furnaces. It commonly takes one ton of Cumberland coal in the bushelling furnace to produce one ton of iron. The cost of Cumberland coal, at the works, averages $8·25 per long ton. The petroleum used in the experiments cost 5 7-10 cents per gallon, delivered in Providence, and the anthracite used under the generator cost $6·25 per long ton.

"For the petroleum process only two men instead of three are required at the bushelling furnace. No cleaning of the bars or wheeling of ashes are required. The furnace used in the experimental tests remained clean and free from dust. The iron produced was cleaner than when coal was used.

"In working on the large scale, a single man would manage the generator and super-heater for the whole works, as well as, in this instance, for a single furnace.

"Three charges of *thin* wrought scrap were weighed before and after 'heating' with petroleum, by Messrs. C. H. Perkins and R. W. Comstock, superintendents of the Horse Shoe Works, showing a loss of only 13 per cent. in welding and balling; while with the same thin scrap, in the common process at the works, the loss is estimated at 25 per cent.

"The petroleum iron, thus produced, in billets, was softer and finer than that made by the common process.

"It was observed, at the works, that the gases of combustion from the petroleum furnace carried more heat, and were worth more for their final use of making steam under the steam boiler, than the gases of combustion from the coal furnaces."

GENERAL CONCLUSIONS.

1. The Eames system of feeding furnaces with petroleum exhibits that minute study, on the part of the inventor, of the chemical nature and characteristics of the new fuel, which only could lead to immediate success in its practical application.

2. This thorough knowledge and appreciation of the special practical difficulties to be grappled with, together with a high degree of energy and intelligence that has manifestly been put forth in the pursuit, has led to an early and complete success in this novel art of operating furnaces with oil fuel, such as has not often been paralleled in the history of inventions.

3. The only method of introducing the oil into the furnace, which is at the same time sufficiently rapid and capable of bringing about a smokeless combustion—that is, in the form of a powerful jet of complete vapor—has been successfully attained; and the construction and method of the Vapor-generator are such that no possible interruption, clogging or irregularity, short of a solution of its continuity, can occur in its action.

4. An exact adaptation and adjustment has been arrived at of the oil burner, or device for securing rapid, complete and uniformly diffused combustion, with the enormous volume of air that is required, without possibility of such excess of heat in any part as to melt down and destroy the burner itself; this essential device being reduced to a marvel of simplicity and efficiency.

5. The additional plant and alterations required for the adaptation of the new system to existing furnaces are cheap, simple and facile.

6. The rapidity with which heats may be raised under the new system gives us two important advantages. Continuous firing is no longer indispensable to economical working, and stoppages for repairs will no longer involve such protracted and expensive delays.

7. The combination of devices constituting the Eames system has so developed the full powers and capabilities of oil fuel, that we are enabled readily to measure and ascertain these with accuracy for the first time, and make them a subject of reliable deduction from actual figures obtained on a working scale.

8. We thus learn, as demonstrated in the preceding pages, that the economical advantages in siderurgy, of added intensity of temperature, and energy or concentration of heat, in saving of time, as an element of work done, are even greater than have been contemplated by those men of science who have fully admitted the general principle; so much greater, that in siderurgical practice, where the heat taken up by the iron is but a small fraction of the total heat, the calorific superiority of oil over coal, weight for weight—admitted, at most, heretofore as 17·5 to 10 or 14—actively and effectively rises to a ratio of eight to one.

9. It stands also as proved, by this investigation, that an additional, most important advantage results, in making steam, from the combined purity and density of this flame, and that a much larger steam making absorption of heat, by the boiler surface, ensues; the effect being similar to the comparative powers of an ordinary fuliginious gas flame and that of the Bunsen burner; so that the chimney gases are discharged at a temperature sometimes 300° Fahrenheit lower than from a coal fire; and the total efficiency of the furnace rises to 92 or 93 per cent. of the total heat engendered.

10. The tests of the elasticity and tensile strength of the iron reheated by the oil-flame of Eames, as well as the development of the lamina by chemical corrosion, prove that this flame must be unsurpassable for effecting a strong and uniform weld, and for thus developing from a given iron the best strength and durability of which its chemical nature is susceptible.

All of which is respectfully submitted.

HENRY WURTZ.

No. 12 HUDSON TERRACE, HOBOKEN, N. J.

* It is *five* tons in the affidavits, with *five* tons of coal; but preferring to be *sure* in these figures, I have exaggerated these figures in favor of the coal.

† These men, it is proper to add, had at this time passed out of the employ of the inventor, by reason of the somewhat unexpected termination of the experiments. One of these men, the "Screw Man," Thomas Temple, is of 38 years' experience, as he states in his affidavit; and is regarded as a very skillful and valuable artisan.

The miners are asking for a reduction of rent in the Schuylkill region to correspond with the reduction of wages.

The Siemens-Martin Steel Process in France.

We have received the following communications, which may be of interest to many of our readers:

ANONYMOUS SOCIETY OF THE MARTIN STEELS,
Office, 29 Rue Le Peletier,
MARTIN-SIEMENS PROCESS,
PARIS, July 30, 1875.

To the Editor of The Iron Age, New York—DEAR SIR: Permit us to invite your attention to the accompanying two documents, having reference to cast steel manufacture. We remain, dear sir, yours respectfully,

P. DE SEMT, Deputy Administrator.

PARIS, July 20, 1875.

The Martin patents for the manufacturing of steel on the hearth of a reverberating furnace heated by gas, according to the Siemens system, have been frequently assailed, like all patents of real value.

In 1867, Mr. Aristide Berard, who had taken out a patent for the manufacture of steel, insisted upon the Martin process being an imitation of his own, and commenced a law suit against Messrs. Martin. In 1870 the first tribunal of the Seine dismissed the claim, and condemned him to the costs; aside from this his process has never been practically adopted for industrial purposes.

More recently, Mr. Alfred Sudre, who, in 1858, had taken out a patent for the manufacture of steel, and who had abandoned it subsequently in consequence of fruitless experiments made at Montataire, tried to extinguish the Martin patents through recourse to the courts. This law suit was protracted by political events in 1870 and 1871, as well as by the slowness of experiments that had to be resorted to. The experts who had been appointed by the tribunal were Messrs. Burat, Jordan and Lan, and they made their return only on the 21st November, 1874. In this report the majority of the experts arrived at the following conclusions:

I. That the now relinquished patents of Mr. Sudre and Messieurs Boigues Rambourg constituted no anteriority to the Martin patents.

II. That the Martin processes are made up of elements pretty much all known; but that by combining them they have reached results which had not been attained before them.

III. That Messieurs Martin, of Sireuil, have been the first who succeeded in manufacturing steel without difficulty on the grate, and that as early as 1867 they had arrived at industrial processes which furnished a merchantable article.

The said experts having come to such a clear conclusion on the subject, Mr. Sudre, on perceiving that the matter would be taken up by the courts in a thorough manner on the 21st of July, receded from further pursuing the suit at law on the 15th of July, acknowledging the validity of the patent of Messrs. Martin.

Hence there is at present no litigation attempted to upset the Martin patents, and licenses to use these processes are granted by the Anonymous Society of the Martin Steels, 29 Rue Le Peletier, Paris.

THE MANUFACTURE OF MARTIN STEEL.

The steel manufacturing question engages public attention now-a-days more than ever before; we therefore believe that the industrial public at large will be glad to be acquainted with the practical results which the manufacture of Martin steel gives, whether in the Martin furnace or the revolving grate furnace of Mr. Pernot. The figures of the subjoined table are the average results of the Pernot furnace on the one hand, and the Martin furnace on the other, obtained during the first quarter of 1875 at two of the leading works using these furnaces. On examining the same, many erroneous views that have obtained on the subject through the instrumentality of several publications, will be removed:

Consumption for the production of a ton of Ingots.	Pernot Furnace.	Martin Furnace.
Coal*	695 kilos for ingots for rails... 663 kilos for ingots of soft ste'l Or about 13·90 or 13·26 francs....	520 kil's gas coal..... 190 kil common coal. Or about 13·10 francs..... (710 kils.)
Refuse	6 % for rails ..... 8 % for soft steel.	7 %.....
Pr'd'n during 24 hours	16,600 kilos for rails ..... 15,833 kilos for soft steel.....	16,800 kilos for rails ..... 15,000 for soft steel .....
Wages	12·39 francs.....	10·20 francs....
Running expenses and repairs.....	16·47 francs... ..	10·25 francs....

*The ton of gas coal is reckoned at 20 francs; common coal at 14 francs.

Government Tests of Iron and Steel.

Committee. (O). Steels for Tools. David Smith, U. S. N.; L. A. Beardslee, U. S. N.; Wm. Sooy Smith, C. E.

NAVY DEPARTMENT, WASHINGTON, 1875.

A Committee of the Board appointed by the President of the United States in conformity with an Act of Congress, approved March 3, 1875, has been instructed to make a series of tests to determine the constitution, characteristics and special adaptations of steels used for tools.

As the results sought to be obtained are of public interest, the committee would request manufacturers of tool steels to aid in this work, by furnishing samples of their steel, to be subjected to mechanical, physical and chemical tests.

DIMENSIONS.

1 Bar 4 feet long and 2¼ inches by 1¼ inches.
1 " 4 " 2 " 1¼ "
1 " 6 " 1 inch round.
1 " 8 " ⅝ " hexagonal.

Bars should be stamped at one end with a distinguishing number, and the trade mark and initials of the maker.

It is particularly requested that a full description of each bar, specified by number, be furnished, stating the kind of raw materials used the processes employed in its manufacture, the size of ingot, number of reheats, and the extent to which it has been subjected to hammering or rolling. Its chemical analysis and the results of mechanical tests, with dimensions of the specimens broken, if such have been made, will also be of value to the committee.

Please state, also, at what heat each quality of steel submitted is best worked and hardened, the process of tempering recommended, the kind of cooling medium to be employed, and the color to which the temper should be drawn for tools intended for different purposes.

If it should be desired by the manufacturer to furnish one of his own men, familiar with and skilled in working the particular steel submitted, the committee would be pleased to accept his services.

Any suggestions in regard to the tests to which the steel or tools made of it should be subjected, will be thankfully received.

The bars are to be stored until the committee determines where they are to be sent.

DAVID SMITH, Chairman.

A Correction.

DELAWARE ROLLING MILL,
PHILADELPHIA, Aug. 19, 1875.

Editor of The Iron Age: DEAR SIR.—We notice in your paper dated August 5th, that you have included us among the creditors of Gerry, Tilton & Colwell, iron brokers, of New York. This is a mistake, as we have never done a dollar's worth of business with that house.

Yours, truly,

HUGHES & PATTERSON.

Determination of Total Carbon in Cast Iron.

BY C. ALVARGONZALEZ.

To determine the total carbon the cast iron is attacked by a salt of copper, the sulphate being generally preferred. The result of the reaction is that the iron is dissolved, leaving a residue consisting of metallic copper, carbon and some silica. A certain portion of the carbon is left in the residue as hydrocarbons. Upon washing it with benzol I have obtained a substance strongly resembling coal tar.

The course generally adopted has been to oxidize the residue and to estimate the carbon as carbonic acid. Although, in theory, this is correct, the results obtained in practice are far from being satisfactory, unless the process be carried out by a person of unusual skill and experience. The apparatus is necessarily complicated, troublesome to put together, and yields very unastisfactory results with many operators.

These considerations have induced me to try to estimate the total carbon by loss. Although Fresenius* says that methods founded on determination by loss are not reliable, because the carbon precipitated with the metallic copper is not all in the state of pure carbon, the results that have been obtained, not only by myself, but by several fellow students, prove the accuracy of the method.

The method that has been adopted is very simple and expeditious. It is as follows: Ten grammes borings of cast iron are treated with a solution of neutral sulphate of copper (formed with forty-one grammes of sulphate dissolved in the necessary amount of water) until the reaction ceases.

The result of the reaction is a mixture of metallic copper, graphite, hydrocarbons and a certain portion of silica. From this mixture the copper must be separated. Instead of using for this purpose chloride of copper and hydrocloric acid, as recommened by Engerz, I use dilute nitric acid, which attacks the copper in a much shorter time. Although this course has met with disapproval on account of the liability of nitric acid to oxidize the carbon, the results obtained show that sufficiently diluted nitric acid has no action on it.

After the copper has been dissolved, dilute solution, and collect the precipitate on a filter; wash it thoroughly and dry, when it will become detached from the filter, and it may be placed in a platinum crucible.

As it is necessary that the precipitate be detached as thoroughly as possible from the filter, I have adopted for this analysis the filter of Mr. Rother,† which has no folds, and in which the precipitate is spread on a smaller surface than on other conical filters. The precipitate may be separated from the filter with a feather, the quantity of carbon left on the paper being inappreciable. The filter is not used after the carbon has been removed from it, and may be thrown away. After the precipitate has been thoroughly dried at 100° C. and weighed, the carbon is burned over a Bunsen burner, and estimated by loss.

The following results have been obtained:

Analyses by F. A. Cairns. By the CO_2 method.	Analyses by the students. By loss.
4·10 per cent.	4·28 per cent.
4·01 "	3·99 "
3·80 "	3·79 "
4·10 "	4·16 "
3·80 "	3·75 "
3·80 "	3·68 "

Some of the results obtained are slightly higher than those given by the estimation by direct weight. This may be due to estimating as carbon the impurities which accompany it. The slight difference between the results obtained by these two methods is probably owing to the circumstance that the principal impurity accompanying carbon is hydrogen, whose equivalent is very low.

LABORATORY OF THE SCHOOL OF MINES,
Columbia College, N. Y., May, 1875.

* See English translation, 1v. edition Bullock and Vacher, London, 1865, p. 658.
† Described by Mr. Proctor. *Chem. News*, Jan. 30 1874, p. 57.

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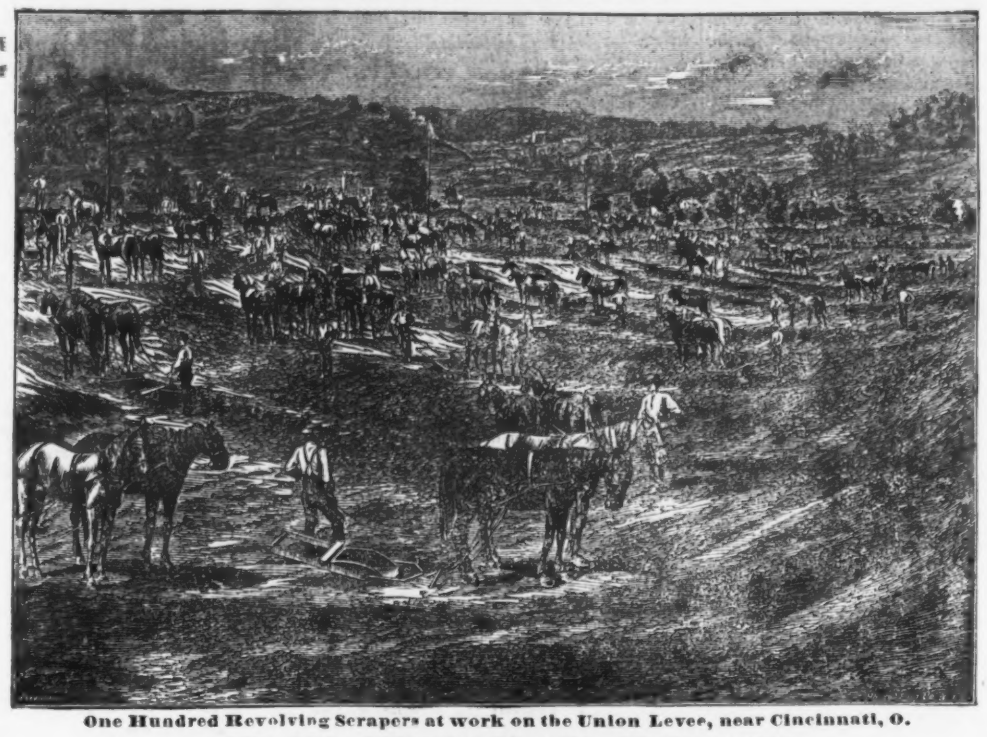

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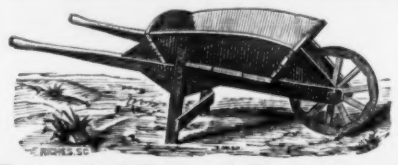

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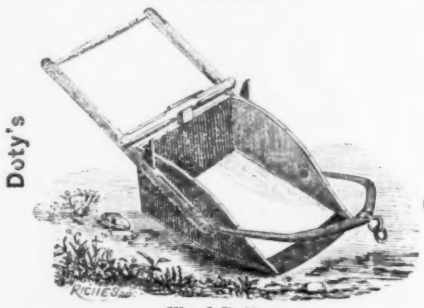

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Blake Bros.' Knives, Utilities, &c.
Greenfield Tool Co.'s Planes.
M. S. Brooks' Screw Eyes, Hooks, &c.
Watson & Co.'s Cotton, Wool & Horse Cards.
Thrall's Try Squares, Bevels and Rules.
J. P. Verrel's Hammers and Edge Tools.
Judd & Blakeslee's Snaps, Sash Fasts, &c.
H. Wilkinson's Mincers and Screw Drivers
Bliss & Co.'s Hand and Bench Screws.
T. T. Rhodes' Saw Handles.
American Screw Co.'s Rivets and Screws.
Stillman's Saw Sets.
Dodge's Kentucky Cow Bells.
Holroyd & Co.'s Stocks and Dies.
C. S. Griswold, Augers and Bitts.
Romer & Co., Pad Locks.
Wm Cleveland, Star Faucets.
Bullock's Babbitt Metal.
Cowles' Hardware Co. Mincers, &c.
Robbins' Cotton Lines.
Amidons' Braces.

First & Pryibil's
461 to 467 W. 40th St.
New York City.
Salesroom,
48 Cortland St., N. Y.

Patent Improved

BAND SAW MACHINES

For Bevel and Square Scroll Work and Re-sawing. Manufacture six different sizes. Prices, $165, $210, $250, $300, $350, $425, and $1000. Also manufacture CARVING, SHAPING, FLUTING, ADJUSTABLE DOUBLE SPINDLE BORING, CARVED and SERPENTINE MOLDING MACHINES. Also, GENERAL and COUNTER-BALANCED OVAL TURNING LATHES for WOOD and BRASS TURNING, METAL SPINNING, etc.

CIRCULAR SAW BENCHES, SHAFTING, PULLEYS, and HANGERS. A large assortment of the best FRENCH BAND SAW BLADES, at greatly reduced prices. And a Machine that will set an ordinary Band Saw PERFECT in two and a half to three minutes. SAVING of LUMBER pays for the Machine in a very short time.

The Clock for the New Tribune Building.

The Philadelphia *Ledger* says that the new clock just finished for the *Tribune* building is claimed to be by far the most complete of the kind ever produced in the country, and equal fully to the best made in Europe. The clock as it is now running shows a variation of only one second a week, and it is believed that, after it has been running for some time longer, it will keep even more accurate time. The machinery is mounted upon pillars of fine steel, set in a frame work of cast iron.

Instead of the old "dead beat" escapement, a far more nicely adjusted combination of machinery is employed. It is the new gravity escapement. The pendulum is thorough in "compensation," being constructed of nine parts, four of brass and five of steel. It is a two-second pendulum, taking two seconds for its swing or beat. At the lower end of the pendulum is suspended a weight of four or five pounds, inclosed in a heavy lenticular brass cup. The length of the pendulum rod is about fourteen feet. The pendulum is hung upon very delicate steel springs, and its movements are made with the utmost precision.

The six legged gravity escapement is connected with the pendulum by simple yet delicate mechanism, and all its acting parts are jewelled. By this escapement the motion is communicated to the pendulum. On each side of the pendulum rod is an iron arm suspended from one end, obliquely. As the escapement wheel turns, small pins on its axes raises the free end of one of these arms by means of levers. As the pendulum reaches the termination of its path, the arm is released, and its weight, pressing against the pendulum, drives it to the other side, where the operation is re-repeated. The motion is carried to the four dials above by a revolving iron rod.

The arrangements for illuminating the dials are very complete. The dials by which the time by day is to be indicated, are twelve feet in diameter, and those which are to be illuminated at night are nine feet in diameter. The day dials are composed of enormous blocks of granite into which the figures are sunk. These will be made to be seen at a great distance. The night dials, also four in number, are to be of ground glass. The figures, visible at night, will not be seen in the day time, as they are to be inside the glass dial. The valve through which the gas reaches the two large burners behind each dial is turned by ingenious machinery. A small jet is kept burning all the time, but the amount of gas consumed is very trifling. Screws are so arranged in a slot in the wheel attached to the works that they can be set in such a way as to turn on the gas at any hour desired. A reverse arrangement automatically turns off the gas at the proper time.

There is an electric attachment to the clock by which any number of dials may be run all over the building. An automatic retaining power permits the clock to be wound without interfering in the least with its continuous action. There are sixty holes in the brass wheel attached to the main shaft. By withdrawing the pin which makes the connection, the whole machinery can be whirled with ease and rapidity in either direction. The small dial in front also enables the operator to judge exactly when to stop. The hands are so weighted that they cannot be affected by the weather, however severe a storm may prevail. The clock will be placed in the tower shortly. It was built by E. Howard & Co., of New York.

The Wearing Powers of Steel Rails.

The Cincinnati *Times* has the following on this subject:

The continued depression of the iron interest, not only in this country but in Europe, is a subject for thoughtful consideration. The wonderful growth of the iron production of the world from 1835 to 1865 marked it emphatically as the iron age, and during that period was built almost our entire present system of railroads, covering over 73,000 miles of track, and requiring fully 7,300,000 tons of railroad iron in its construction. The annual wear and tear, estimated at about 10 per cent., would require 730,000 tons per annum of railroad iron. Since 1865 Bessemer steel rails have been growing in favor and decreasing in cost, and to-day the Bessemer plants of this country are capable of producing 350,000 tons of steel rails per annum. When it is remembered that each steel rail possesses fully seven times the life of an iron rail, is it to be wondered at that so many of our iron rail mills are changing their production to merchant bars? Every ton of Bessemer steel rails that has been put into the railroads of the country for the past ten years has possessed a wearing life, as compared to iron rails, as 70 to 10. It requires very little calculation to estimate the required production of steel rails, not only to cover the entire wear and tear of all our iron roads, but in a few years to replace our iron roads with steel rails.

When this is accomplished there will only be required 73,000 tons per annum to supply the wear and tear that in 1865 required 730,000 tons of iron. This will account in part for the decreased production of pig iron in the country for three years past. In 1872 there were produced 2,854,558 tons of pig iron; in 1873, 2,869,278 tons; and in 1874, 2,689,413 tons, a falling off of about 16 per cent. in the production of pig iron in two years. This was fully equalized by the low wear and tear of the steel rails that had gone into the railroads since 1865.

We are now entering on the steel age, and the iron men of the country must meet the question firmly, understanding not only that the market for railroad iron is almost at an end, but that whenever Bessemer steel supplants the use of wrought iron, it not only requires less weight for a given result, but that, the life of steel being so much longer than iron, the wear and tear will be proportionately less. England, France and Belgium have already recognized the sovereignty of the new metal, "Bessemer," and are now changing their works to meet the emergency. Shall our iron and steel men, with their justly won laurels for the great production with the Bessemer plants, allow others to step in and rob them of their glory?

Iron Pipe for Water Supply.

It is encouraging to find that, notwithstanding the depression of our iron interests, there is no let up to the untiring industry, ingenuity and enterprise of our American manufacturers. After a large expenditure of time and money, success has crowned effort in the production of lap welded wrought iron seamless pipe of large diameter and all thicknesses, for water conduits. The practice, until recently, has been to use one large cast or riveted iron pipe as a main supply, but this practice has led to much inconvenience. Whole cities, both in Europe and this country, have occasionally been left without water in some of their districts, owing to the bursting or some other derangement at some point of this large main. This experience has led to the adoption of small mains, usually twelve to fourteen inches diameter, so arranged that should one fail no such calamity as that referred to can occur; also by the adoption of these smaller mains advantage may be taken of the seamless lap welded wrought iron pipe now made in these sizes by the National Tube Works Company, of Boston, Mass., and McKeesport, Pa., and which are in every way preferable to cast iron or riveted wrought iron, more durable, capable of greater pressure, quite as cheap, and more easily laid and repaired, from the simplicity and less number of the joints. We make these suggestions in the public interest, and shall be glad to find our city fathers have well considered this point; but the most important and the most puzzling to those desirous of taking the city water into their dwellings, etc., is, what is the best kind of pipe to be used for this purpose?—a question that has perplexed every house builder and property owner for years past, and here the trouble begins. Lead pipe has long since been condemned as dangerous to health; lead pipe lined with tin has been tried, but experience has left but a questionable record; cast and wrought iron is liable to corrosion; iron lined with porcelain or glass would be a splendid conduit, but is found impracticable in use. Galvanized iron, which on its first discovery bid fair to solve the problem, is found seriously wanting, and quite unsafe and unsuitable for water supply. Recently we have been much interested, having our attention drawn to a pipe enameled with a substance which appears to resist all these corrosial tendencies, and supply what has been so long needed, a durable, elastic, indestructible coating for both the inside and outside of the pipe, which neither alkalies nor acids, salts or sulphur, or any other known corrosive will touch, much less dissolve. Chemists of undoubted standing, and the practical experience of a large number of persons using it, confirm the hope that a way has been found to overcome a very serious difficulty, and a means found of supplying a want so universally felt wherever water is required for domestic uses. We recommend our readers to investigate the matter for themselves, and trust that our calling public attention to the matter will lead to public good.—*Exchange.*

The South Boston Iron Company have just completed, for the United States government, one of Thompson's 12-inch breech-loading rifled guns. Although larger smooth bore guns have been cast, this is believed to be the heaviest breech-loading rifle ever constructed of cast iron. It required 156,000 pounds of metal in casting, although cast with an open core, and now weighs 82,280 pounds. The breech is 56 inches in diameter, muzzle 27, extreme length, 226 inches. The proof charges for this gun will consist of an elongated, conical pointed shot, weighing 600 pounds, with from 60 to 70 pounds of powder.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, August 18, 1875.

The financial project commonly known as "the 3·65 scheme," is just now attracting a considerable measure of public attention, and as many of our readers are probably but imperfectly acquainted with the scheme and its proposed operations, we will discuss it briefly. As we understand, then, the advocates of this measure propose what amounts to practically unlimited inflation with practical repudiation of the interest bearing debt of the government. They propose that the interest bearing bonds of the government shall be redeemed as rapidly as possible in greenbacks. Concurrently, with this so-called redemption the government shall print an amount of bonds equivalent to the nominal value of the greenbacks issued, said bonds bearing interest—also in paper currency—at the rate of 3·65 per cent., or one cent per day on one hundred dollars. Any person having greenbacks for which he has no immediate use can take them to the Treasury in sums of not less than $100, and exchange them for these 3·65 per cent. bonds. When he wants currency again he takes the bonds back to the Treasury and exchanges them for greenbacks. Thus the bonds and the greenbacks are supposed to continue redeeming each other forever; the volume of the currency in circulation is to regulate itself to the volume of trade automatically, so to speak. No doubt it would. But the scheme is, in our judgment, open to many and grave objections. In the first place the redemption of the interest bearing obligations of the United States in greenbacks would be an act of bad faith, closely resembling repudiation. The bonds of the government, while not specifying that they are redeemable in coin, were sold and purchased with that understanding, Mr. Chase so interpreted the law under which they were issued, and Congress so declared by a formal resolution, passed with a view to settling at rest any doubts in the minds of investors. Second, their redemption with greenbacks would put in circulation some fourteen or fifteen hundred millions of currency, for the ultimate redemption of which no provision is to be made. The new greenbacks are to be so many dollars—not promises to pay dollars. They represent nothing whatever. To say that they are good because based upon the credit of the government is meaningless, because if the government assumes no obligations in regard to them, it does not pledge its faith or state its credit. Third, the bonds which are to be made interchangeable with these greenbacks bear interest in the same kind of money with which they are interchangeable; and if this has no fixed basis of value, the bonds will be of value just as long as the public have confidence in this wild-cat paper, and no longer. The operations of this system of finance, if it were possible to carry it out, would be to first destroy the government credit, by repudiating its coin obligations, flood the country with irredeemable paper, the value of which would quickly drop to zero, producing a condition of affairs quite the reverse of that general abundance and prosperity which is sought by the honest advocates of the scheme. It is not, however, likely to be carried into operation, even if it should be the successful political issue of the next Presidential campaign. The Supreme Court has already decided that the government cannot issue paper legal tenders, except as a war measure, and should Congress enact a law to carry the "3·65 scheme" into effect, it is probable the Supreme Court would promptly declare it unconstitutional. We fail to see that the plan has a single feature to recommend it to popular favor, or that it is either constitutional or practicable. Among our readers there are probably many honest and intelligent advocates of this summary method of settling the currency question. We respect their convictions, but would ask them to consider the subject in all its bearings. There is but one way in which the credit of the country can be maintained, and that is by the payment of the principal and interest of its debt in coin, and without a sound national credit no paper dollars issued by it, whether nominally redeemable or not, would have any value.

During the past week the financial markets have been dull and without interest, but there are encouraging indications of an increasing activity in general trade. Reports from the interior indicate that the damage to crops by the recent floods was less severe than was at first supposed. Money continues easy, and abundant to borrowers on call at 1⅛ @ 2⅛ per cent. The discount rate on mercantile paper is 4 @ 5½ per cent.

The gold market has been heavy during the week, and had the amount of cash coin in the market been larger, the premium must have declined. On Thursday the Treasury sold $1,000,000, coin, at 113·77 @ 113·84. The following table shows the daily range of the premium:

	Highest.	Lowest.
Thursday	113⅞	113⅛
Friday	113⅛	113⅛
Saturday	113⅛	113⅛
Monday	113⅛	113⅛
Tuesday	113⅛	113
Wednesday	113⅛	113⅛

Government bonds have been steady, closing at the quotations given below. Railway mortgages are strong and in good demand.

The stock market has been dull and irregular, but generally strong. The most active stocks were Western Union, Northwestern, Lake Shore, Ohio and Mississippi, Rock Island, and St. Paul. We give below the highest and lowest of to-day's quotations of active shares.

The last statement of the New York banks shows a loss of $5,767,400 in total reserve, and of $4,910,000 in surplus reserve, the latter being now $22,160,000. The following is a comparison of the averages for the past two weeks:

	Aug. 7.	Aug. 14.	Differences.
Loans	$280,434,300	$283,541,900	Inc. $3,107,600
Specie	16,334,400	13,442,100	Dec. 2,892,300
Leg. tend	73,601,300	70,726,200	Dec. 2,875,100
Deposits	251,462,800	248,033,200	Dec. 3,429,600
Circulation	18,521,800	18,412,700	Dec. 109,100

The movements in foreign trade for the week are shown as follows:

IMPORTS.

	1873.	1874.	1875.
Total for week	$5,970,442	$5,252,836	$8,843,937
Prev. reported	252,543,901	253,393,426	210,690,823
Since Jan. 1	$259,514,343	$258,646,262	$219,534,760

Among the imports of general merchandise were articles valued as follows:

	Quant.	Value.
Anvils	192	$1,851
Brass goods	21	3,157
Bismuth	4	1,376
Bronzes	49	10,544
Chains and anchors	109	4,308
Copper		804
Cutlery	183	70,329
Gas fixtures	3	1,106
Guns	109	19,144
Hardware	143	14,024
Iron, pig, tons	1,051	18,152
Iron, sheet, tons	17	2,119
Iron, cotton ties	860	2,403
Iron tubes	710	1,062
Iron ore, tons	325	499
Iron, other, tons	543	37,479
Lead, pigs	1,933	11,355
Metal goods	183	21,374
Nails	21	1,928
Needles	29	13,434
Old metal		804
Per. caps	7	1,428
Saddlery	25	1,841
Steel	1,247	21,505
Silverware	1	304
Tin, boxes	39,798	283,691
Tin, slabs, 73l	31,267	5,182
Wire	372	5,161
Zinc	121,674	7,618

EXPORTS OF SPECIE.

Total for the week	$1,572,520
Previously reported	61,036,904
Total since January 1, 1875	$62,609,424
Same time in 1874	38,909,242
Same time in 1873	38,513,581
Same time in 1872	55,238,266

Government bonds at the close were quoted as follows:

	Bid.	Asked.
U. S. Currency 6's	123	123¼
U. S. 6s 1881, reg	120½	121
U. S. 6s. 1881, cou	121½	121½
U. S. 5-20 1864, reg	115¼	116¼
U. S. 5-20 1864, cou	115¼	116¼
U. S. 5-20 1865, reg	118¼	118¾
U. S. 5-20 1865, cou	118¼	118¾
U. S. 5-20 1865, reg. new	118¾	119¾
U. S. 5-20 1865, cou	118½	118¾
U. S. 5-20 1867, reg	120¾	120¾
U. S. 5-20 1867, cou	120¾	120½
U. S. 5-20 1868, reg	121	122
U. S. 5-20 1868, cou	121	122
U. S. 10-40 reg	114¼	114¾
U. S. 10-40 cou	118	118¼
U. S. 5s. 1881, reg	116	116¼
U. S. 5s, 1881, cou	116½	116¾

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	104½	104⅝
Lake Shore	60¾	59⅞
Rock Island	108¾	108⅝
Del. Lack. and Western	121⅞	121⅞
Michigan Central	63	62¾
Cleveland and Pittsburgh	90	90
Wabash	6½	6½
Western Union Telegraph	84⅜	83¾
Atlantic and Pacific Telegraph	21	21
Northwestern	42¾	42½
" Pref	56¾	56½
Milwaukee & St. Paul	37⅜	37
" Pref	62¾	62½
Pacific Mail	38⅞	38¾
Erie	15⅞	15⅝
Ohio & Mississippi	19⅞	19⅝
Union Pacific	73	73
Missouri Pacific	48¾	48⅝
Hannibal & St. Joseph	24¾	23¾
" " Pref	31	31
Mariposa	11	11
Adams Express	102	102

GENERAL HARDWARE.

Trade continues to improve and the number of buyers, especially from the West, at present in this city, gives our market something of the appearance it used to present at this season when trade was in a more normal condition than it is now. Buyers, as a rule, are acting with extreme caution, and the orders placed, although representing the usual assortments, fall far short of the quantities which custom has led manufacturers to expect as the reasonable requirements of their customers at the commencement of the season. Many buyers expect to duplicate their orders very soon, but, from present appearances, the hand-to-mouth system is likely to prevail during the balance of this year. This plan of doing business, although it may not be as satisfactory as the old method of large orders, few and far between, must commend itself on the ground of prudence and safety, and will tend to augment rather than reduce the aggregate of a season's consumption.

The reduction in the price of Wood Screws by the American Screw Company, which was looked for on the 15th inst., will take place September 1.

The market for Foreign Hardware is void of special interest; prices are firm and unchanged, and an improved demand is reported.

There is little if any change in the condition of the Nail market, and we repeat the quotations of last week, viz., 10d., in large or small lots; $3·20 @ $3·25 net.

The Greenfield Tool Company, Greenfield, Mass., manufacturers of Planes, Plane Irons, &c., have added to their specialties the manufacture of Extra Plated Table Cutlery. At present they are making only the best quality of Table Knives, but as soon as their facilities are completed the assortment will be increased. They will furnish dealers with Knives ready for plating, and will also finish for the trade warranted plated goods of best quality and finish.

The following revised discounts have been established by the manufacturers of Bellows in this city:

Common Bellows	dis. 15 per cent.
Extra and Pittsburgh Pattern	list net
Molders' Bellows	dis. 20 per cent.
Hand Bellows	dis. 10 per cent.

The Gilbert & Bennett Manufacturing Company, Georgetown, Conn., and 273 Pearl street, New York, manufacturers of Iron Wire and Wire goods, etc., have adopted for a trade mark a Phœnix, surrounded by a scroll containing their name and address, together with the date of their establishment, 1818. A copy of their trade mark will be found in advertisement on the 2nd page.

In our abstract of patents, on page 5 of our paper of last week, reference was made to a new Tonguing and Grooving Plane. The Stanley Rule and Level Company are the owners of the patent, and have already commenced manufacturing the tool. Our attention has been directed to a sample, and we must pronounce it one of the finest specimens of ingenuity and simplicity, in the combination of two distinct tools in one, which we have yet seen. The stock of the tool is made of iron, and two cutters are placed at a suitable distance apart to use for tonguing. The guide, which is hung on a pivot at its center, may be easily swung around, end for end, thereby covering one of the cutters and converting the tool into a grooving plane. We shall be able to quote a price for this tool next week.

H. K. Drake, No. 31 Chambers street, agent for the Birmingham Shovel Company, has issued the following list for their Solid Cast Steel Shovels and Scoops, the regular discount from which is 15 per cent. This list shows an increased assortment of these goods. H. K. Drake is also agent for the American Shovel Company, of Brooklyn, N. Y., whose list will be found below:

PRICE LIST OF SHOVELS AND SCOOPS MANUFACTURED BY THE BIRMINGHAM SHOVEL COMPANY AND THE AMERICAN SHOVEL COMPANY.

Birmingham Shovel Company.

Shovels.

No.		Per doz.
2,	Best C. S. Sq. Point, Long or D H'dle, Bl'k	$14·50
3,	" " " " " "	15·50
4,	" " " " " "	16·50
5,	" " " " " "	17·50
6,	" " " " " "	18·50
2,	" Rd. " " " "	15·00
3,	" " " " " "	16·00
4,	" " " " " "	17·00

Scoops.

2,	Best C. S. Long or D. Handle	16·00
3,	" " " "	17·50
4,	" " " "	18·25
5,	" " " "	19·00
6,	" " " "	20·00
7,	" " " "	21·50

Polished Shovels, 50c. extra per dozen; Polished Scoops, $1 extra per dozen.

The American Shovel Company.

Shovels.

No.		Per doz.
2,	Best Steel, Sq. Point, Long or D H'dle, Bl'k	$13·00
3,	" " " " " "	14·00
4,	" " " " " "	15 00
5,	" " " " " "	16·00
6,	" " " " " "	17·00
2,	" Rd. " " "	13·50
3,	" " " " "	14·50
4,	" " " " "	15·50
2,	" Molders', Polished	13·00

Polished Shovels 50c. extra per dozen.

Bradford & Anthony, Boston, Mass., have issued an illustrated price list showing the various styles of Winslow's Common and Club Skates, and Forbes' Patent Acme Club Skates, for both of which they are sole agents in this country. We print below their descriptive list and discounts for these goods for the season of 1875-6, and refer our readers to their advertisement on the 24th page, in which they illustrate Forbes' Patent Acme Club and Winslow's All Clamp Club Skates:

Winslow's Skates.

No. 95. Sizes, 7 to 11 inches.

A durable Skate, so constructed that the woods will not split. Price 75 cents per pair.

No. 100. Sizes, 7½ to 10½ inches.

The Runners and Heel Screws are set into a Brass Thimble, making a very strong Skate. Price, 85 cents per pair.

No. 140. Sizes, 8 to 11 inches—Rocker.

This Skate has a Club Pattern Blade. The woods will not split. The Heel and Toe Screws fasten the woods and runners together, through Brass Thimbles. Price, $1 per pair.

Solid Runner Skates.

No. 200. Sizes, 7 to 11 inches.

The Heel Screw passes through a Brass Thimble, which greatly strengthens the Skate, and prevents the wood splitting. Price, 95 cents per pair.

No. 245. Sizes, 8 to 11 inches—Half Rocker.

Varnished Beech Woods, Solid Runners, fastened in a secure manner to the woods by a Brass Thimble—a device which ingeniously and effectually prevents the breaking or splitting of the woods. Heel Screw. Price, $1·25 per pair.

No. 250. Sizes, 8 to 11 inches—Rocker.

Varnished Beech Woods, Solid Runners, finished in same manner and fastened with Brass Thimbles, as in No. 245. Price, $1·25 per pair.

No. 295. Sizes, 8 to 11¼ inches—Half Rocker.

Solid Cast Steel Blades, French Polished Beech Woods, fastened with Brass Thimbles. Price, $1·75 per pair.

No. 300. Sizes, 8 to 11¼ inches—Rocker.

Solid Cast Steel Blades, French Polished Beech Woods, fastened with Brass Thimbles. Price, $1·75 per pair.

No. 325. Sizes, 8 to 11 inches—Half Rocker.

Solid Welded, Hardened Steel Blades, Varnished Beech Woods, Screw Heel, Runners fastened by Brass Thimbles, effectually securing the wood against splitting, making a strong and stylish Skate, Price, $2 per pair.

No. 330. Sizes, 8 to 11 inches.—Rocker.

Solid Welded, Hardened Steel Blades, same quality and finish as No. 325. A most desirable pattern. Price, $2·00 per pair.

No. 455. Sizes, 8 to 11 inches.—Half Rocker.

Polished Beech Woods, Solid Welded, Hardened Steel Blades, Brass Center, Heel and Toe Plate, Runners fastened with Brass Thimbles, making one of the strongest Skates, and embracing all the good points required. Price, $3·00 per pair.

No. 460. Sizes, 8 to 11 inches.—Rocker.

Polished Beech Woods, Solid Welded, Hardened Steel Blades, Brass Center, Heel and Toe Plate, Runners fastened with Brass Thimbles. Price, $3·00 per pair.

No. 665. Sizes, 8 to 11 inches.—Black Ebony Finished Half Rocker.

Solid Welded, Hardened Steel Blades, German Silver Center, Heel and Toe Plates. Price, $4·00 per pair.

No. 670. Sizes, 8 to 11 inches.—Black Ebony Finished Rocker.

Solid Welded, Hardened Steel Blades, German Silver Center, Heel and Toe Plates. Price, $4·00 per pair.

No. 675. Sizes, 8 to 11 inches.—Rosewood Half Rocker.

Solid Welded, Hardened Steel Blades, German Silver Center, Heel and Toe Plates. Price, $4·00 per pair.

No. 680. Sizes, 8 to 11 inches.—Rosewood Rocker.

Solid Welded, Hardened Steel Blades, German Silver Center, Heel and Toe Plates. Price, $4·00 per pair.

Gents' Frame Skate.

No. 275. Lengths, 7 to 11 inches.—Steel Blade, Standard.

French Polished Beech Woods, Screw Heel, Strapped complete, with Broad Toe Straps and Narrow Heel Straps. Price, all Strapped, $2·25 per pair.

No. 400. Lengths, 8 to 11 inches.

A stylish pattern for gentlemen who prefer a strapped Skate for security to the foot, rather than the Clamp Fastening. Cast Steel Runners, Polished Beech Woods, Brass Toe, Heel and Cross Plate. Price, without Straps, $2·75 per pair.

Ladies' Skates.

No. 220. Sizes, 7 to 10 inches. Price, $1·25 per pair.

No. 270. Sizes, 7¼ to 10 inches.

Ladies' Skate. New Pattern. Price, $1·50 per pair.

No. 274. Lengths, 7 to 10 inches.—Ladies' Standard, Frame, Steel Blades.

French Polished Beech Woods, Strapped complete, with Brass Heel Bands and Mortised Toe Straps, Patent Buckles, Black Leather Trimmings. Price, $2·25 per pair.

No. 272. Sizes, 7 to 10 inches.—Ladies' Standard, Frame, Steel Blades.

French Polished Beech Woods, Strapped complete, with Brass Heel Bands and Mortised Broad Toe Straps, Black Leather Trimmings. Runners either grooved or flat. Price, $2·10 per pair.

No. 276. Lengths, 7 to 10 inches.—Ladies' Frame, Standard, Steel Blades.

French Polished Beech Woods, Strapped complete, with Silver-plated Heel Bands and Mortised Broad Toe Straps, Patent Buckles, Black Leather Trimmings. Price, $2·40 per pair.

No. 280. Lengths, 7 to 10 inches.—Ladies' Frame, Standard, Steel Blades.

French Polished Beech Woods, Strapped complete, with Silver-plated Heel Bands and Mortised Broad Toe Straps, Patent Buckles, Russet Leather Trimmings. Price, $2·50 per pair.

No. 382. Sizes, 8 to 10 inches.—Ladies' Rink Skate.

Polished Beech Woods, Cast Steel Runners, Black or Russet Leather Straps, Patent Buckles. Price, $3 per pair.

No. 384. Sizes, 8 to 10 inches. Ladies' Rink Skate.

Ebony Woods, Cast Steel Runners, Silver Trimmings, Black or Russet Leather Straps. Price, $3·50 per pair.

Winslow's New York Club Skates.

The New York Club A.

Blued Steel Tops, Runners made from American Stock, and is the Cheapest Club Skate offered to the trade. Price, $2·75 per pair.

The New York Club B.

Made of Imported Steel, extra tempered Blades, Blued Foot and Heel Plates. Price, $3·50 per pair.

The New York Club C.

Electro Nickel Plated, extra bright finished Steel. Warranted in all its parts. Most thorough and complete Club Skate ever put in the market, and sold at the low price of $5 per pair.

Winslow's All Clamp Club Skates, A. C.

A New Improved Skate, with Heel and Sole Clamp Fastening. Price, $4·25 per pair.

Forbe's Patent Acme Club Skates.

No. 5.

This is the cheapest Skate. The Runners are made of all Steel and not hardened, and the working parts are equally reliable with the best, although not so well finished. Price, $4 per pair.

No. 7.

Welded Steel and Iron Runners of the best quality, and thoroughly hardened and tempered, nicely finished in handsome design. Exceedingly simple in construction, substantial and reliable in every particular. Price, $5 per pair.

No. 10.

Electro Nickel Plated; same quality as No. 7, Nickel Plated. This improves their appearance, retaining their bright finish and insures freedom from rust. Price, $7 per pair.

No. 12.

Electro Silver Plated; same quality as No. 7, Silver Plated, making a very handsome appearance. Price, $7·50 per pair.

No. 14.

Electro Gold Plated Tops, and Electro Silver Plated Runners. These also are similar in quality to No. 7. The Gold and Silver Plating, together, is novel and beautiful. Price, $8 per pair.

Sundries.

Extra Parts of Club Skates.

Heel Plates, per pair	10c.
Skate Keys, each	15c.
Single Clamps, each	20c.
Clamps Screws, each	10c.
Extra Parts of Acme Skates, No. 7, which serve also for all numbers. If Plated either Nickel, Silver or Gold, cost of plating must be added.	
Runners, per pair	$3·00
Links, "	35
Levers, "	75
Lugs, per doz. single (Single Clamps)	1·75
Lug Screws and Nuts, per doz.	1·25
Link Screws and Nuts, "	1·50
Heel Buttons, per doz	1·25
Wrenches	80
Nuts only	60
Screws only	1·00

Superior Skate Straps.

Made from Leather prepared expressly for the purpose.

Heel and Toe Straps, 30 and 20, per doz. sets	$2·50
Toe Straps only, 36 to 40, per doz. pairs	2·50
Heel and Toe Straps, 36 and 20, with Patent Buckles, per doz. sets	5·75
52 inch Club Straps, with Common Buckles, per doz. pairs	4·00
52 inch Club Strap, with Patent Buckles, per doz. pairs	5·50
Broad Toe with Heel Straps, Common Buckles—1⅛ 1¼ inch. $3·00 $3·50 per doz. sets.	
Broad Toe with Heel Straps, Pat. Brass Buckles—1⅛ 1¼ inch. $4·00 $5·00 per doz. sets.	
Heel Straps, Common Buckles, per doz. pairs	1·25
Heel Straps, Pat. Brass Buckles, per doz. pairs	2·00
30 inch Toe Straps, Common Buckles, per doz. pairs	1·50
30 inch Toe Straps, Patent Brass Buckles, per doz. pairs	2·50

Terms.

Prices of Skate Straps ..... net.

Skates.

For amounts, at list, $100	10 per cent. dis.
For amounts, at list, $500	15 " "
For amounts, at list, $1000	20 " "

Payable in Boston or New York funds.
For bills of $200 or less, cash within 30 days. Bills over $200, cash January 1st.

BRITISH IRON MARKET.

(*Specially reported by cable for The Iron Age.*)

WEDNESDAY, Aug. 18, 1875.

Scotch Pig.—The market has been irregular since last report, prices fluctuating up and down, but it may now be called steady, with a good business doing. The following are makers' quotations:

Gartsherrie No. 1	69/6
Coltness No. 1	73/
Glengarnock No. 1	68/
Eglinton No. 1	62/

Manufactured Iron and **Rails** remain as previously reported.

IRON.

American Pig.—The month of August is generally a dull one in the best of times, and now, in the prevailing stagnation of the trade, scarcely anything is doing. The supply is large of all grades, and production going steadily on. We do not hear of any further blowing out this week, though many makers say unless there is an early revival of business a reduction will be necessary. Prime brands of Lehigh No. 1 are obtainable at $26, though one or two companies are still adhering to $27, but that is the very outside figure named. Some of the weaker companies, however, are disposed to offer below above figures, and there are lots in second hands which can be had, by actual cash buyers, on exceedingly easy terms. We hear of only 250 tons No. 1 at $25 @ $25·50, and 400 tons Gray Forge, on private terms, having been sold, excepting some small jobbing parcels. We quote: No. 1 Foundry, $26 @ $27; No. 2 Foundry, $24 @ $25; Gray Forge, $22 @ $24; White and Mottled, $21 @ $22.

Scotch Pig.—With advices of an advance abroad of 2/ @ 3/ per ton, together with the light stock here, holders are inclined to ask full prices for the small lots wanted. There is scarcely any inquiry for large parcels, however, and to force sales materially lower figures would have to be accepted. We hear of sales of 100 tons Eglinton from dock at $29, 4 months' interest added; 100 tons do. at $27, cash; 100 tons do. at $27·50, cash, and 100 tons Coltness at $29, cash, delivered at New Haven. We quote Eglinton nominally at $29 @ $30, and Coltness, $31 @ $32. The market is entirely bare of Glengarnock and Gartsherrie.

Bar.—Manufactured continues dull and weak, though for small lots from store about former prices are asked.

Rails.—The fresh orders for new Domestic are rather light, though most mills are running full time on back contracts. Prices are considered firm for both Iron and Steel. Foreign Rails continue scarce and firm. A rumor of a sale of 1600 tons Domestic is current in the market, but not generally credited. We quote at $47 @ $50, currency, for Domestic, at the mills, and about $48 @ $50, gold, for Welsh.

Old Rails.—There appears to be a moderate inquiry for Old Rails, though without leading to much actual business. We quote at $26 @ $26·50.

Scrap.—There is only a moderate inquiry for Scrap, and the market presents about the same general features. We note sales of 150 tons in lots at $30 @ $32, and 100 tons on private terms.

METALS.

Copper.—Sales of Lake Copper on the spot sum up between 300,000 and 400,000 pounds at 23c. The asking price is now 23½c.; very little could, indeed, be had at 23¼c. Nothing has transpired in "futures." We quote Baltimore, nominally, 23c. to 23¼c. The Copper market in general remains quiet, but firm, without any new features to comment upon. Accounts are to hand by telegraph from London to the 16th inst., when Chili Bars were £82, and Best Selected was quoted £88; by mail they reach to the 7th, and mention that the French government bought in England between 2500 and 3500 Wallaroo (Australian) Copper at £87. 10/ to £88, since when we hear by cable that this kind advanced to £90. 10/. This goes to confirm the truth of the theory frequently put forward of late that the Copper purchases for war purposes on the other side would continue without interruption for some time to come, and assist very materially in lending strength to values. The stock, including afloat and chartered, was, on the 1st inst., in England and France, 29,704 tons against 32,691 in 1874; 39,279 in 1873; 37,733 in 1872, and 36,680 in 1871, while the price of Chili Bars was £79, against £76, £81, £103 and £68 the previous four years. Charters on the West Coast for the second half of July were but 1400 tons, against 2300 the fore part of the month. Chili actually shipped to Europe up to July 17, 24,763 tons, against 22,115 in 1874, while the charters to July 31 had been 27,900 against 28,100. The amount held back on speculation by the Chileans now amounts to about 6000 tons. From what precedes it will be perceived that the London market rose £3 during the first fortnight in August, which will probably bring out some of the Copper held on speculation at Valparaiso, and a further material London improvement may bring out the balance. We shall, consequently, have to be prepared for liberal shipments thence to Europe in the near future. Meanwhile, the deliveries up to Aug. 1 were, in England and France, 36,629 tons, against 38,678 and 32,806 in 1874 and 1873. So far as Europe is concerned, Copper seems to be in a tolerably sound position. The manufactures of Copper remain well supported here at the following rates: New Copper Sheathing, 30c.; Bolts and Braziers, 31c.; Bronze and Yellow Metal Sheathing, 22c., and Bolts, 28c.

Tin.—This metal had receded to £79, and subsequently to £78, at London, last week, as per cablegrams, but has now returned to the previous figure, £80. The article is so sensitive now-a-days that we should be at a loss to account for its mercurial movements from day to day, even if we were at London or Amsterdam, instead of being at such a distance. Yet those interested in the metal endeavor to find a reason for more considerable fluctuations, in advance of the mail accounts. Thus it was thought that the recent recoil was due to an important London failure in the metal trade, but that the reduction of the bank discount to 2 per cent., and a better appreciation of the large deliveries of Tin to consumption, ultimately prevailed, and produced a favorable reaction. Coupled therewith came news from Brisbane (Queensland, Australia), dated May 18, according to which there was a diminished yield since the beginning of the year, in that locality. A London letter, dated August 7, which we have read, fully confirms the good impression which the large deliveries are producing, and expresses the expectation of higher rates in the future. We have remained firm here, with some sales of Straits at 18½c., gold, and an upward tendency. At this figure more may yet be had, but 19c., gold, is asked by some holders. There is little English Tin here, and we quote Common, 18¾c., and Refined, 19c., both gold. Banca we quote 23c., gold, nominally. Tin Plates have been active only in a jobbing way, and remain unaltered, though closing weaker, as follows: Charcoal Bright, $8; do. Terne, $7·25 @ $7·37½; Coke Tin, $6·75 @ $7; and do. Terne, $6·50, all gold, per box. The quotations of Tin and Plates are for larger lines, the latter ordinary brands.

Lead.—This metal is failing in strength as the season advances, and very little is being done, sales of Domestic for the week not exceeding 50 to 75 tons in a small way, at 5·87½c. @ 5·95c., gold, the market closing dull at this. Of Foreign there is very little here, and our quotation is entirely nominal. We would call the same 6¾c. @ 6⅞c., gold, although it would cost more to import it. St. Louis remains firm at 6½c., currency, Common Lead, and 6¾c. Soft—worth 6¾c. and 7¼c., currency, here. Freight from St. Louis is very low—say, 30c. The shipments of Bullion from Utah and Nevada eastward have been unusually heavy in July—heavier than during any previous month except one. Should trade remain as inactive as it is at present this month and the ensuing one, there would probably be an accumulation of stock at this point of between 4000 and 5000 tons in first and government hands on Oct. 1st next. Our largest consumer being fully stocked, and not likely to reappear in the market as a buyer of Lead, the prospect is not a flattering one, unless, as we have said before, the trade revives. In the latter event the stock on hand would, on the contrary, prove barely sufficient to carry us through. By mail from London, Aug. 7, Lead is reported firm, with a good demand, at £22. 5/ for Soft English Pig. Manufactures are steady here at the following quotations: Bar, 8¾c.; Pipe, 9¼c.; and Sheet, 9½c., less discount to the trade.

Spelter and Zinc.—Both Domestic and Foreign Spelter remain without any feature of interest for the time being. The demand for Domestic is but moderate, and, although the outside lots seem to have been mostly absorbed by consumers, the combination parties do not yet encounter the more active demand which it was hoped would set in by this time. They, nevertheless, keep up the selling figure of 7¼c., currency, less 1 per cent. for cash. Nor is there enough general demand for Spelter to stir up the foreign article, which we quote as heretofore, 7⅛c. @ 7¼c., gold, with little transpiring, either on the spot or to arrive. The European markets remain firm, the English market in particular, with a good demand, while on the Continent the prevailing strength tends to restrict dealings. *Sheet Zinc* is quiet and firm at 8¼c. @ 9c., gold.

Antimony.—There is a fair amount of trade transacting at 13¼c., gold, for Foreign. London, on the 6th instant, was brisker, at £55 @ £56.

COAL.

We have hardly any change of consequence to report in the condition of this market since our last. Anthracite continues to arrive quite freely, and dealers are well stocked. There is a fair demand for retail lots, but the market is not so active as usual at this seasen of the year. So many mills are now closed that the consumption is light and cargoes are difficult to place.

The circular of Messrs. E. B. Ely & Co., room 12, Trinity Building, 111 Broadway, quotes as follows for Coal delivered on board vessels at South Amboy, N. J., for August delivery:

	Beaver Meadow Lehigh.	Franklin.	W'k'barre.
Lump	$5·55	5·00	5·00
Steamer	...	5·10	5·10
Broken	5·45	5·20	5·20
Egg	5·55	5·45	5·45
Stove	5·90	5·90	5·90
Chestnut	5·10	4·90	4·90

Lehigh Washed Pea... 4·00 f.o.b.

The quantity of Coal sent from the Schuylkill region the last week was by rail 129,017 tons; canal, 20,055 tons; for the week, 149,072 tons, against 104,440 for the corresponding week last year. Increase, 27,317 tons.

The supply sent from all the regions was: Anthracite, 585,092 tons; Bituminous, 75,920 tons; for the week, 661,012 tons, against 516,008 tons for the corresponding week of last year. Increase, 145,004 tons.

The supply sent from all the regions so far this year foots up 12,148,227 tons, against 13,415,554 tons to same period last year. Decrease, 1,267,227. The decrease in Anthracite is 1,546,835 tons.

We quote as follows: Anthracite, $4·90 @ $5·90; Cumberland, $6·25 @ $6·75; West Virginia, $6·75 @ $8; James River Steam, $6·25; James River Carbonite, $9 @ $9·50; Kanawha House, $11·50; American Gas, $6·75 @ $7·25; American Cannel, $12 @ $14; Pennsylvania and Westmoreland, $6·75; Murphy Run, $6·50; Newburg Orrel, $6·50; Sterling Ohio, $10; Ince Hall, $17 @ $18; Liverpool House Cannel, $17; Liverpool Gas, $12; Newcastle Gas, $7·50; Scotch, $7·50 @ $8.

The Coal transported over the Cumberland Branch Railroad during the week ending Aug. 14, 1875, amounted to 5788 tons, as against 7485 tons shipped in the corresponding period of last year, showing a decrease of 1697 tons. Over the Cumberland & Pennsylvania Railroad, for the same period, the shipments were 44,810 tons, against 53,040 tons shipped in 1874, a decrease of 8230 tons. The aggregate amount of Cumberland Coal shipped by the various companies so far this year amounts to 1,381,059 tons.

OLD METALS, PAPER STOCK, &c.

The old metal market is still without any activity, and dealers are accumulating stocks without much prospect of soon selling them. The market for Paper Stock and Rags still continues dull. There is little inquiry for any class of these goods, and there is no strength to prices. Our quotations remain nominally unchanged. We quote the following as the current purchasing rates:

Old Metals.—Copper, 16c. @ 17c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5½c.; Tea Lead, 4½c.; Zinc, 4¼c. @ 4½c.; Pewter, No. 1, 18c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5½c., Wrought Iron, 1c.; Sheet do., ½c.; Cast, do., ½c.; Machinery, do., ¾c.

Rags, &c.—Canvas, Linen, 4½c. @ 5¼c.; do. Cotton, No 1, 5¾c. @ 6¼c.; No. 2, 2¼c.; White, No. 1, 6¼c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 5c. @ 5½c.; Gunny Bagging, 1¼c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 2¾c. @ 3c.

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending Aug. 17, 1875:

Hardware.

Brown Wm.
Grindstones, 25
Boker Hermann & Co.
Mdse. pkgs., 4
Degraw, Aymer & Co.
Wire rope, pkgs., 32
Cases, 1
Dreyfus Bros. & Wieller,
Casks, 13
Degener R. & C.
Pistols, cs., 1
Fuller Bros.
Mdse. pkgs., 4
Fire irons, cs., 1
Hardware, cs., 1
Per. caps, cs., 1
Gun materials, cs., 1
Field A. & Co.
Mdse. pkgs., 42
Frasse P. A. & Co.
Mdse. pkgs., 3
Friedmann & Lauterjung.
Mdse. pkgs., 4
Folsom H. & D.
Mdse. pkgs., 6
Kunhardt & Co.
Cases, 15
Grindstones, 100
Lan & Garlichs,
Mdse. pkgs., 3
Lennox E. S. & Co.
Bale ties, lots, 230
Meyer I. T. & Co.
Cases, 4
Moore's J. P. Sons,
Mdse. pkgs., 1
Remington E. & Sons,
Mdse. pkgs., 1
Robinson M. W.
Rifles, bxs., 1
Stratton John F. & Co.
Cases, 10
Spies, Kissam & Co.
Mdse. pkgs., 2
Schoverling & Daly,
Mdse. pkgs., 3
Taylor Thos.
Cases, 2
Van Wart & McCoy,
Mdse. pkgs., 2
Vietors Theo. Sons,
Packages, 13
Wolffe H. & Co.
Cases, 1
Ward A.
Cutlery, cs., 4
Wiebusch & Hilger Mfg. Co.
Mdse. pkgs., 13
Anvils, 200
Chains, cks., 23
Packages, 7
Order.
Cases, 13
Guns, cs., 4
Files, cks., 16
Wire, bdls., 185

Iron.

Henderson Bros.
Pig tons, 200
Irwin R. & Co.
Pig, tons, 100
Mallory C. H. & Co.
Hoop, bdls., 2337
Phelps, Dodge & Co.
Sheet, bdls., 386
Order.
Spiegel, lots, 1

Steel.

Brown Wm.
Packages, 482
Garem E. L. & Son,
Bundles, 76
Lang W. Bailey & Co.
Tire forgings, 16
Naylor & Co.
Rails, 1843
Prosser Thos. & Sons,
Tire forgings, cs., 16
West, Bradley & Cary, Mfg. Co.
Wire, bdls., 74
Order.
Bundles, 499
Cases, 2
Bars, 1

Metals.

Bruce & Cook,
Terne plates, bxs., 350
Tin plates, bxs., 775
Baring Bros.
Tin, slabs, 242
Brown Bros. & Co.
Tin, slabs, 340
Byrne Joseph & Co.
Tin plates, bxs., 1344
Cort N. L. & Co.
Tin plates, bxs., 780
Dickerson, Van Dusen & Co.
Tin plates, bxs., 1214
Hirsch J. & Co.
Lead, pigs, 70
Leaycraft & Co.
Scrap, pkgs., 23
Morse D. & Co.
Tin plates, bxs., 520
Naylor & Co.
Tin plates, bxs., 501
Pacific Mail Steamship Co.
Scrap, pkgs., 19
Phelps, Dodge & Co.
Tin plates, bxs., 8373
Black taggers, bxs., 80
Societe de Credit Suisse,
Tin slabs, 636
Order.
Lead, pigs, 2117
Tin plates, bxs., 6804
Spelter, plates, 2533
Barrels, 173⅛

PITTSBURGH.

PITTSBURGH, Aug. 17, 1875.

PIG IRON.—There is but very little to record that is new or important in regard to this important article. Business continues exceedingly quiet, as it nearly always is at this particular time, and no improvement is expected until next month. However, as the feeling very generally prevails that the market has touched the lowest notch, and that an advance is much more probable than a decline, a spurt may take place any day, as the mills, with very few exceptions, have little or no stock, and some of them are inclined to buy, but are apprehensive that in so doing they might stiffen the market on themselves and enable producers to put up prices. There is no disputing that the general position of the market is in favor of the producer. The production continues small; stocks are lower than they have been for several years, whereas the consumption is as large as ever it was. The best evidence of this latter point is that, until quite recently, every mill hereabouts was in operation, and many of them working up to their full capacity. Furthermore, advices from the furnaces in the Shenango and Mahoning valleys report that Detroit, Chicago, Cleveland and other Western cities have been buying, and that, too, in some instances at better rates to the producer than can be obtained here. The fact is the consumption of mill iron in nearly all the Western cities is steadily increasing, and this accounts for the material reduction in stock. And what adds still more strength to the tone of the market is, that in no event is there likely to be any increase in production until fall, and not then, unless there has been a decided improvement in the meantime. Foundry grades continue very dull, and the market for Charcoal Irons is probably as much depressed now as it has been at any time since the panic, as the supply is largely in excess of present requirements, which are unusually light. Standard Gray Forge Irons may be quoted firm at $24, 4 mos.; No. 1 Foundry, $27 to $28; No. 2 ditto, $25 to $26; White and Mottled, $22 to $22·50

MANUFACTURED IRON.—The outlook, which for a time was clouded by the reported damage to the crops, appears to be brightening again, as it now appears that the reports in question were considerably exaggerated, and, in addition, the weather for ten days past has been very favorable for harvesting, and the great bulk of the crops in this section of the country, as well as in the West, have already been secured. While there is no question but serious damage was done by the recent floods, it is not believed that it was sufficient to affect or diminish the consumption of Finished Irons, and our manufacturers continue to entertain hopes of, at least, an average trade, and more remunerative rates. There is no cause for complaint, so far as relates to business, as the mills with few exceptions have had all they could do ever since they were started up in the spring, but prices have ruled so low that there was little or no margin for profit. Quotations are still made on a basis of 2·25c. @ 2·30c. for Merchant Bars, Western classification.

NAILS.—The Nail trade continues quiet; most of the factories are stopped, some to take stock others to make repairs, but as stocks are almost exhausted, and orders for the fall trade will commence to make their appearance before long, a general resumption will take place between now and the first of next month. The market is still quoted firm at three dollars, but it is understood that some makers are allowing a rebate of 10 cents per keg on all orders for and over 100 keg lots, which brings the actual selling price down to $2·90, sixty days, with the usual discount of 2 per cent. for cash.

STEEL.—The Steel trade continues fairly active; all the mills in operation, some of them working up to their full capacity, but complaint is still being made in regard to prices, which, it is said, leave little or no margin for profit.

SCRAP IRON.—Continues very dull, as it nearly always is at this particular time, and no improvement is expected this side of next month, if then. No. 1 Wrought is still quoted at $25 @ $26, 4 months, delivered at mills.

WEATHER AND CROPS.—The weather continues very favorable for harvesting, and this week will finish it pretty well in this section of the country. The damage by the recent rains was considerably exaggerated.

The Pittsburgh *Commercial*, August 14, says: We are not able to report any improvement in the price of pig metal this week, nor any increase in the volume of sales; but in canvassing the market we find that there has been a more active inquiry, and that there is a firmer feeling on the part of the furnace men. In our rounds we met a furnace man from one of the valleys, who said he had declined an offer of $23, cash, for 1000 tons No. 1 gray forge iron. The stocks of old metal are being reduced steadily, and if this continues for a few weeks, there will be nothing but the current product of the furnaces, now in blast, on the market. Shipments from the furnaces in Shenango and Mahoning valleys to the lake ports are said to be quite as large as to this and the river markets. The price may still be fairly quoted at $24, four months, for gray forge. We are reported the following sales:

BITUMINOUS COAL SMELTED FROM L. S. ORE.

250 tons gray forge	$23·00—cash.
300 tons gray forge	24·00—5 mos.
100 tons mottled and white neutral	22·00—4 mos.
100 tons neutral forge	23·00—4 mos.
100 tons gray forge (No. 1)	24·00—4 mos.

ALLEGHENY COKE.

150 tons Redbank	$25·00—4 mos.

CHARCOAL.

165 tons Nos. 2 and 1 f'dry, h. r.	$27·00 @ 33·00—4 m.
10 tons No. 1 foundry, h. r.	30·00—4 m.
42 tons No. 2 foundry, h. r.	26·60—4 m.
25 tons No. 1 foundry, h. r.	31·00—4 m.
42 tons No. 2 foundry, h. r.	27·00—4 m.

ST. LOUIS.

Messrs. SPOONER & COLLINS, Iron commission agents, 409 North Third street, St. Louis, under date of Aug. 13, report the Iron market as follows: Our market is still dull, with no special change in prices. The demand is some what better than last week, but orders are mostly limited to small lots for present wants.

Mo. Stone Coal,	No. 1 F'dry.	$28·00 @ 29·00—4 mos.
" "	No. 2 F'dry.	26·00 @ 27·00—4 mos.
" "	No. 1 Mill...	25·00 @ 26·00—4 mos.
" Charcoal,	No. 1 F'dry...	28·00 @ 29·00—4 mos.
" "	No. 2 F'dry...	26·00 @ 27·00—4 mos.
" "	No. 1 Mill...	25·00 @ 26·00—4 mos.
Tenn. Charcoal	No. 1 F'dry..	28·00 @ 29·00—4 mos.
" "	No. 2 F'dry..	26·00 @ 27·00—4 mos.
H. R. "	No. 1 F'dry..	29·00 @ —4 mos.
H. R. "	No. 2 F'dry..	27·00 @ —4 mos.
H. R. "	No. 1 Mill....	26·00 @ —4 mos.
Massillon,	No. 1 Foundry....	36·00 @ 37·00—4 mos.
"	B, No. 1 Foundry..	34·00 @ 36·00—4 mos.
"	No. 2 Foundry....	33·00 @ 34·00—4 mos.
Cold Blast Car Wheel,	Mo...	37·00 @ 40·00—4 mos.
" "	Tenn.	35·00 @ 40·00—1 mos.
" "	Hanging Rock	53·00 @ 55·00—4 mos.
Mo. Charcoal Blooms		75·00 @ 85·00—4 mos.
Machinery Cast Scrap		90c. per lb.
Light Cast "		60c. "
No. 1 Wrought "		1·1c. "
Stove Plates		¾c. "

CINCINNATI.

Messrs. L. B. HULL & CO., under date of August 16, write us as follows: PIG IRON.—There is nothing particularly interesting to report of transactions during the week now closed. The demand for all grades is light, as consumers are running below their usual capacity, and at present seem inclined to purchase sufficient only for immediate wants. Manufacturers, on the other hand, are not generally with heavy stocks, and while at present they appear willing to meet the market for current orders, show no disposition to contract ahead, and are in good condition to advance prices whenever opportunity offers.

HOT BLAST CHARCOAL.

Hanging Rock	No. 1..	$27·00 @ —4 mos.
" "	No. 2	25·00 @ —4 mos.
" "	Forge	23·00 @ 24·00—4 mos.
Virginia	No. 1	26·00 @ —4 mos.
"	No. 2	24·00 @ —4 mos.
"	Forge	23·00 @ —4 mos.
Southern Brands	No. 1	25·00 @ 26·00—4 mos.
"	Forge	23·00 @ —4 mos.
Missouri	No. 1	27·00 @ 28·00—4 mos.
"	No. 2	26·00 @ 27·00—4 mos.

HOT BLAST STONE COAL.

Missouri	No. 1	$27·00 @ —4 mos.
"	Forge	26·00 @ —4 mos.
Ohio	No. 1	24·00 @ 27·00—4 mos.
"	Forge	23·00 @ 26·00—4 mos.
Am. Scotch,	No. 1	25·00 @ 26·00—4 mos.

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel		$35·00 @ 40·00—4 mos.
Missouri	" "	35·00 @ 40·00—4 mos.
Southern Br'ds	" "	30·00 @ 43·00—4 mos.
Machinery and Forge		30·00 @ 35·00—4 mos
Blooms		70·00 @ 90·00 —4 mos.

CLEVELAND.

Messrs. C. E. BINGHAM & CO., 25 West Main street, under date of Aug. 16, quote the Iron market as follows, 4 mos. time:

FOUNDRY IRON.

No. 1 Lake Superior Charcoal	$31·50—4 m.
No. 2 " "	30·50—4 m.
No. 1 Anthracite	29·50—4 m.
No. 2 "	27·50—4 m.
No. 1 Bituminous	28·50—4 m.
No. 2 "	27·00—4 m.
No. 1, Cherry Valley Am. Scotch	31·00—4 m.
B—1 " "	28·50—4 m.
No. 2, " "	27·50—4 m.
No. 1 Massillon	30·50—4 m.
B—1	27·50—4 m.
No. 2	25·50—4 m.

CAR WHEEL AND MALLEABLE IRON.

No. 3 Lake Superior Charcoal	$30·50—4 m.
No. 4 " "	32·00—4 m.
Nos. 5 & 6 " "	33·00—4 m.

BESSEMER IRON.

Nos. 1 and 2 Lake Superior Charcoal	$31·00—4 m.

FORGE IRON.

No. 1 Gray	$24·50—4 m.
White and Mottled	23·00—4 m.

BOSTON.

AUG. 12.—*Pig* has a positive undertone of weakness. When holders approach usually large buyers and state that "quotations are nothing; make me an offer; I'm bound to sell at any sort of decent price," it does look as though Pig Iron in Boston was not very desirable. It is unfortunate that this market should reveal so uncertain a tone, but the fact is that, with comparatively nothing doing in foundry castings, either here or in our immediate vicinity, and with small encouragements for the fall or winter, Pig Iron dealers have very little to hope for. The decline at the shipping points has had something to do with unsettling this market, but the reductions do not in the least incite business. The quotations on wharf here are, nominally: No. 1, $29 to $31; No. 2, $24 to $27; and Gray Forge, $21 to $24. *Bar* has had a small, steady run of business, at a basis of $58. The receipts are again quite light, and stocks now well supplied. Common Iron is peddling out at $52 to $54. *Steel* is dull but steady. We quote American Tool, 15c. to 15½c.; American Machinery, 9½c. to 10c.; do. Cast Tires, 8½c. to 12½c.; Sweet's Excelsior Tire, 7c. to 7½c.; English Tool, 16c. to 17c. *Copper* is very listless in legitimate business, although a slight speculative business has been done at a small fractional concession from 23c. The holders in New York and at the mines are reported as carrying a heavy load, and are unable, at quotations, to do anything in an export way. Shipments to the other side would start if values were reduced 1c. For manufactured, we quote New Sheathing, 30c.; Bolts and Braziers, 31c.; Yellow Metal Bolts, 20c. to 29c. *Lead*, though in very light request, is steady. We quote Pig, 6c. for Domestic, and 6¾c. to 6¾c. for Foreign; Sheet and Pipe Lead, 9½c., currency; Tin Lined Pipe, 16½c.; Bar Lead, 6½c., less usual trade or 10 per cent. discount. *Antimony* is firm, with very little business, quoting from 13c. to 13½c. as to lots bought. *Spelter* is strong and extremely dull at $7·55, 30 days, and $7·40, prompt cash, all currency. Silesian is unchanged, quoting nominally $7·30. *Tin* has had some encouragement in the reports of a slight advance on the other side, to which only English pig here has responded, and this is about ¼c. higher for the week. We quote Straits, 18¾c. to 19c.; Banca, 23c.; Refined English, 18¾c. to 19c., gold. Plates are active; we quote Charcoal I. C., $9·50 to $10; Coke, $7·75 to $8; and Terne at $7·50 to $11, gold.—*Com. Bulletin.*

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Aug. 17: There is a noticeable improvement to note in trade during the past week, with more freedom in placing orders for future wants. We quote business fair, with light stocks and unaltered list.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ¾ to 1 thick	2·6-10 to 2 7-10c. ₩
1 to 4½ wide by 1½ to 2 thick	2·6-10 to 2 7-10c. ₩
Round and square, ordinary sizes, from ¾ to 2 inclusive	2 6-10 to 2 7-10c. "
Hoop Iron, 1¼ wide and upward	4¼ to 4¾c. "
Band Iron, from 1¼ to 4 in. wide	3¾ to 3¾c. "
Horse Shoe Iron ¾ to 1 wide by ⅜ to ½ thick	4 to 4¼c. "
Norway Nail Rods	7 to 7¼c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	15½ to 16c. "
Machinery Steel	11 to 11½c. "
Cast Spring Steel	10 to 10½c. "
Homogeneous Steel Plate	10½c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·00
" Mule Shoes " "	6·00

Common Horse Nails, from 14c. to 18c. per pound.

	10	9	8	7	6
Putnam Horse Nails	23	24	25	26	28c. per lb.
	10	9	8	7	6
Globe Horse Nails	23	24	25	26	28c. per lb.

R. R. Spikes 5¼ by 9-16 at 3c to 3¼c. per lb.

Messrs. R. C. HOFFMAN & CO., Iron and commission merchants, Nos. 23 and 25 South Frederick street, report the Pig Iron market as follows, under date of Aug. 16: We have no special change to note in our Iron market. As heretofore, purchasers confine themselves to immediate wants. Market dull, and we quote prices as follows:

Baltimore Charcoal	$30·00 @ 35·00
Virginia "	29·00 @ 34·00
Anthracite No. 1	26·00 @ 27·00
" No. 2	24·00 @ 26·00
" No. 3	22·00 @ 24·00
White and Mottled	20·00 @ 22·00

LOUISVILLE.

Messrs. GEO. H. HULL & CO., under date of Aug. 16, writes us as follows: There is some inquiry for first-class Foundry Iron, but at low figures. For Cold Blast and Mill the demand is very light.

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$27·00 @ 28·00
" 2 " " " "	25·00 @ 26·00
" 1 Mill, " " "	23·00 @ 24·00
" 1 F'dry, from Alabama, Georgia and Tennessee Ores	25·00 @ 26·00
" 2 F'dry, from Alabama, Georgia and Tennessee Ores	24·00 @ 25·00
" 1 Mill, from Alabama, Georgia and Tennessee Ores	23·00 @ 24·00

HOT BLAST STONE COAL AND COKE.

No. 1 F'dry, from Hanging Rock Ores	$25·00 @ 26·00
" 2 " " " "	24·00 @ 25·00
" 1 Mill, " " "	23·00 @ 24·00
" 1 F'dry, from Alabama, Georgia and Tennessee Ores	25·00 @ 26·00
" 2 F'dry, from Alabama, Georgia and Tennessee Ores	24·00 @ 25·00
" 1 Mill, from Alabama, Georgia and Tennessee Ores	23·00 @ 24·00
No. 1 F dry, from Missouri Ores	27·00 @ 28·00
" 2 " " "	26·00 @ 27·00
" 1 Mill, " "	26·00 @ 27·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores		35·00 @ 40·00
" "	Tennessee Ores	30·00 @ 33·00
" "	Alabama and Georgia Ores	30·00 @ 35·00
Car Wheel from Kentucky Ores		28·00 @ 35·00

RICHMOND.

Mr. ASA SNYDER, Iron Merchant and Furnace Agent, Richmond, Va., writes as follows under date of Aug. 18: Quotations unchanged. Two Charcoal furnaces blown out since last report.

Virginia cold blast Charcoal Pig Iron		$30·00 @ 35·00
" hot " "		28·00 @ 32·00
Va. hot blast Coke Pig Iron,	No. 1 ex.	26·00 @ 27·00
" " " "	No. 2 ex.	25·00 @ 26·00
" " " "	No. 3 ex.	24·00 @ 25·00
Virginia Anthracite,	No. 1 ex	27·00 @ 28·00
" "	No. 2 ex	26·00 @ 27·00

FOREIGN.

FRANCE.

(Moniteur des Interets Materiels.)

PARIS, August 1, 1875.—*Metals.*—The views which have been obtaining in trade circles during the past week or two are of a more cheerful nature. There has been a favorable change in the weather, both in England and on the Continent, and the prospect of harvesting the cereal crops in a much better condition than there seemed any hope for but a short time ago, is spreading a feeling of more confidence. Should the yield turn out more satisfactory in Europe in general, the Metal trade would be most particularly benefited by this circumstance. Thus there has been shown a greater readiness to buy *Copper* to arrive, especially in England, and this metal may easily develop a better tendency, if more extensive purchases are again made by the various governments. It was rumored that our own war department had bought some 2000 to 3000 tons Australian, in England, but the report lacks confirmation, although we, for our part, do not doubt the truth of it. Business in the Metal has meanwhile been in a languishing condition here, and prices are weak. We quote, deliverable at Havre, Chili Bars, 215 francs; Common, ditto, 211; Ingots, 225; English Tough Cake, 222·50, and pure Corocoro ore, 213·50. Nothing transpires at Havre, where quotations nominally follow the English market, and are the following: First brands Chili Bars, 213 to 214; good current, ditto, 210 to 211, and Lota and Urmeneta, 208 to 209. Copper has slightly declined at Marseilles, where small Ingots bring 215 francs and no more. *Tin.*—The low ruling at the Dutch sale has had the effect of still further depressing the remaining markets, notwithstanding the satisfactory state of the deliveries to consumption that had been induced by the low price of the metal and its more extensive adoption for many uses. Prices here are declining, except so far as Banca is concerned, which maintains the previous figure, 228 francs. Straits cannot be called worth above 210, and English, 215. Straits has dropped to 210 at Marseilles, and Billiton to 205 to 210 francs. *Lead* is looked upon much more confidently in all the metal markets, and the accounts both from England and Spain favor the upward tendency that is gaining ground. We are steady here; French at 56·25, and English at 55·50 francs; no other kinds are to be met with. The Marseilles market has assumed a very healthy tone; there is a strong feeling there, and if no material advance is expected the belief seems to be that at least present prices will be maintained. Prices there keep between 52 and 52·50 francs. Spanish at Havre is 54 to 54·50, all the 100 kilos. The *Spelter* demand in England has slackened somewhat, none but English being offered. In France the metal remains well supported, though not active; we quote here Silesian, deliverable at Havre, 62·50 francs; other good brands there, 62, and 62·50 here. At Havre, in store, Silesian commands 63 to 63·50, all the 100 kilos. Marseilles has undergone no change. *Iron.*—Not much activity prevails in the French districts and principal Iron centers. We quote Merchants' and T Iron, here, 215 francs, and thick Sheets are sustained at 280. At St. Dizier, Pig Iron is not active; the demand there runs more exclusively upon special makes of Iron, such as Chains and Iron Wire, which are in tolerably brisk request. At Nevers one single order has been received for 5000 tons Pig Iron. At the Meurthe and Moselle, as well as at the North, there is no change, but at the Center things begin to assume an improved aspect. *Coal.*—At the Bercy Park, near this city, a vast Coal yard, to cover 100,000 meters, is to be placed, between the depot of the Lyons and Belt railroads; the Seine boats are to discharge their Coal on a dock connected with it.

BELGIUM.

(Revue Universelle).

BRUSSELS, August 1, 1875.—*Iron.*—The Belgian Iron markets have been quite weak, and Pig Iron has suffered a fresh decline. Luxembourg offering Pig at the starving figure of 6·50 francs, delivered at Charleroi. Merchants' Iron and Sheets have been moderately active, so as to keep the various works going; but the manufacturers of rails still complain. One of our German competitors at Bochum took away from us a big job during the week of 14,000 tons Bessemer rails for Portugal. The Committee of French forges has taken in hand the unjust criticism of Mr. Farnworth, about which we ventured a few remarks a short time ago, and in its reports expresses the following sentiments: "Without intending to take sides in the debate, we can safely say that this criticism is another proof of the bad humor which assails English manufacturers whenever the growing importance of Belgian competition comes to be discussed, both in connection with foreign trade and the import of Belgian Iron, rails and sheets, into Great Britain." It would have been nothing but fair if the British press had reproduced what we said about the manifest ignorance of Mr. Farnworth, who might have been good enough to divulge the names of the Belgian Iron establishments he has visited. On the 4th instant tenders will be opened by our State authorities for 35 locomotive tenders. The Belgian Grand Central Railroad invites tenders for the 9th instant for 47 passenger railway cars, 30 freight cars, 450 ordinary coal cars, and 100 sets of wheels. *Coal.*—Although Coal goes begging at a fresh decline, purchasers are holding back. Yet the Coal Exchange of this city was well attended, and there is no secret made of large requirements. The gas Coal of the Mons district is in demand for the Parisian gas works. Freights have again declined a trifle. Our neighbors across the Channel are making renewed efforts to sell us Coal. The Hasard Coal Company, at Micheroux, is about to build a second dwelling for 150 operatives, which will be fitted up very comfortably and will serve as a type for laborers' joint edifices of the kind. On the 20th ultimo tenders were opened for 4150 tons Coal for the hospitals of this city, which were obtained at 22 francs per ton, delivered.

GERMANY.

(Borsenhalle.)

HAMBURG, July 31, 1875.—*Metals.*—Although the German markets, taken as a whole, remain quiescent, it cannot be denied that a better feeling is manifesting itself, due to less gloomy anticipations regarding the grain crops in neighboring countries and England. *Copper* has meanwhile remained quiet. The quotation at Berlin for English and Australian is 91 to 93 marks; Stettin quotes 96 to 100. A lot of old Copper sold here at 78 marks. Ingots unaltered; Drontheim at 94, Minnesota at 110 and Quincy at 100. In *Tin* little business is transacted, and the markets present no feature of special interest. At Berlin Banca is worth 92 to 92·50; English, 89 to 90 marks. At Stettin the market is heavy at 96. Our own market is quiet without change. We quote Banca 98 to 100 marks. *Lead* is steady, and has not varied, either here or elsewhere in Germany. The importation from Mexico remains unsold here. *Spelter*—With a restricted movement, maintaining its firmness. Good brands Silesian at Berlin are still saleable at 24·75 to 25·75 marks the 50 kilos. The quotation at Stettin is 24·30 to 24·50. We are here nominally 24·30 to 24·50.

HOLLAND.

(Koch & Vlierboom.)

ROTTERDAM, Aug. 3, 1875.—*Tin.*—Since the auction our market has remained quiescent, and we quote Banca, deliverable from the late sale, 48¼ guilders; September delivery, 48. Billiton, spot, 46¾; ditto, afloat, 46¾. The Trading Society now holds on warrants 104,690 slabs Banca and 1350 Billiton, against 151,443 and 200 Aug. 1, 1874. The July deliveries have been 8500 slabs Banca, against 7549 last year. The total deliveries since January 1st amount to 77,714 slabs Banca and 3155 Billiton, against 76,172 and 2967 last year. There remain afloat, by sail, 17,824 piculs, against 13,200 in 1874. The stock of Billiton in private hands Aug. 1, 1875, was 26,506 slabs.

EAST INDIES.

(Gilfillan, Wood & Co.)

SINGAPORE, June 25, 1875.—*Tin.*—The demand has been limited, but owing to small supplies the price has advanced to $22·30 per picul. *Shipping.*—For New York the only charter is the E. Dandolo, at £2, 7/6 for deadweight, calling at Penang. The Olustee sailed for New York, taking no Tin; the Glenfield for ditto, via London, took 507 piculs; the State of Virginia for ditto, via London, 850. The N. Boynton, for Boston, took no Tin. No vessel on the berth for Boston now. *Exchange.*—Weak at 4/2¼ to 4/2¾.

(Aitken, Spence & Co.)

COLUMBO, Ceylon, July 7, 1875.—*Plumbago.*—Supplies are extremely limited, and the demand is moderate. The present wet monsoon weather is very unfavorable for preparing Plumbago. *Shipping.*—The Sir Humphrey Davy, 298 tons, was recently fixed at 55/, to load direct for the Atlantic States, principally Plumbago and Coffee, and will likely be ready about the end of the month. *The Export Movement.*—There were shipped from this Island, from October 1 to July 2, to all points, 79,992 cwts. Plumbago, against 1874, 128,102; 1873, 128,896, and 1872, 99,604; of these the United States received, thus far this season, 25,945; the United Kingdom, 52,502; the Continent, 1448, and Australia, 97. No change in quotations. Exchange, 1/10¾ to 1/10¾.

(Dummler & Co.)

BATAVIA, Java, June 19, 1875.—*Tin.*—Of Billiton 9111 piculs were disposed of by public auction on the 14th instant, at an average of 53·09 guilders per picul, equal to £78. 11/1 per ton, free on board, without commission or freight, but inclusive of insurance, at the exchange of 11·82⅛ per £. Season's shipments to the Atlantic States, this season, but 16 tons, against 19 last year. Exchange easier at 11·85 to 11·87½. *Iron*, both Swedish and English, without alteration. Of *Copper Sheathing* there have been more supplies since our last, and sales reported are limited. *Coal.*—Little or no demand; prices weaker.

MEXICO.

(Minero Mexicano.)

MEXICO, July 22, 1875.—*Quicksilver.*—The discoveries of this metal were made at Huitzuco, in March last, and at the time the views of mineralogists on the spot were widely apart, some being of opinion that the whole thing amounted to very little, while others insisted that the mines were rich enough to supply all the wants of the Republic. The assiduity and perseverance of the parties who originally took in hand this enterprise have sufficed to bring out the truth, and the La Luz mine has yielded Quicksilver in quantities sufficient to knock down prices among us to precisely 50 per cent. of their former ruling. The Gambetta mine is a continuation of the Cuahulote mine, and has ranged between 4 and 30 per cent. pure metal, yielding from 50 to 60 flasks weekly. The latest improvements in reduction are being set up, and there is no lack of capital.

Our English Letter.

Review of the British Iron, Steel, Metal and Hardware Trades.

(From our Regular Correspondent.)

SHEFFIELD, ENG., Aug. 2, 1875.

THE TRADE OUT-LOOK

is unalterably dull, dark and depressing. In the expressive but not conspicuously elegant language of the novelists on this side of the water, who place their heroes in the Western hemisphere—"'Taint a sarcumstance, stranger!"

Matters remain precisely as they were when I last belabored my brains on your behalf, and, speaking after a more than usual extent of observation and careful inquiry, I can see nothing which could lead me to the belief that the iron trade proper could possibly revive during the present quarter of the year. Whether prices will again fall at the end of September is a question open to abundant discussion, and must, I opine, be determined by what settlement of the wages and fuel basis is arrived at in the meantime. It certainly does appear to be a fact that with ores, wages and fuel at the existing prices, it is really impossible to produce pig iron at lower figures than at present. In fact, pig iron in Cleveland and elsewhere is, at this moment, on offer at rates which are 2/ to 4/ per ton less than the actually expended cost of production. How long this can last I leave you to infer; but I may state that many furnaces are being blown out, and I hear of preparations to pursue this course on a much more extended scale. It is, doubtless, the only way of bringing the output and demand on a proper level. Meantime the finished iron departments are everywhere excessively quiet, their policy being one of "masterly inactivity." The hardwares are, as a rule, in better request, the majority of the "light" trades of Sheffield, Birmingham and Wolverhampton being very fairly engaged. In this fact lies, I think, some hope for the iron makers.

THE TRADES UNION CONGRESS

will hold its second session this year, at Glasgow, commencing on October 11. Circulars have been sent to all the societies of the United Kingdom stating that the council is at present unable to determine the exact wording of the programme, owing to the position of the Labor Law Bills now passing through Parliament. Societies are also urgently requested to send their contributions in *at once*, as the Parliamentary expenses have been very heavy, and most important work has been accomplished.

"THE SOUTHERN STATES COAL, IRON, &C., COMPANY."

A friend has inspired me with a laudable curiosity to know all about this company, of which the prospectus has just been put forth to the public. The capital is £100,000 in 1000 shares of £100 each, and the company is formed to purchase and develop certain properties in Tennessee, "which have been acquired, after several years' research, by a small syndicate composed of North of England iron masters and their personal friends." The public is also informed that "this syndicate has long been, by its own agents, examining the various mineral properties in the United States suitable for iron manufacture, and has, after much careful investigation, secured the estates hereafter described, which offer advantages not to be surpassed nor easily to be equalled." The prospectus issues from Newcastle, and it is stated that £51,000 of shares were subscribed before the public was appealed to. This appears to me to be so wonderful that I am possessed of a strong and yearning desire to learn all about it. I want to know who these apparently foolish people are, who get hold of so good a speculation, and then suddenly resolve to let their neighbors have the privilege of participation. I am the more curious about this affair, because I happen to be a little behind the scenes in one sense of the expression, that is to say, I know, and sundry other gentlemen in this vicinity very well know, that a certain speculation of this kind—whether identicaly or not in its earlier stages I cannot say—did *not* turn out in the most desirable manner. In fact, I may say that it turned out disastrously, and that there are at this moment gentlemen within a hundred miles of this town, who have been reduced from affluence to a practically moderate position by the losses involved. I dare say some rumors of these matters may have reached you, and if such be not the case I don't think I betray any particular confidence when I state that this very disastrous speculation was embarked in by several Sheffield manufacturers of the highest standing—men whose names are as well known in America as here. Rumor has, of course, wildly exaggerated the affair, but as I have it, one gentleman paid £70,000 to "get out"; another, £80,000; a third, £30,000, and a fourth a similar sum. A fifth gentleman, whose name is not, I think, known on your side the Atlantic, had plunged deeper still, and it was only by dint of diposing of properties, investments, and by inducing friendly aid, that his proportion was at last forthcoming—after one of the most desperate struggles to avoid bankruptcy that I ever witnessed. I say witnessed somewhat metaphorically, but advisedly, seeing that every one in business knew of the struggle, and it was a matter of daily public gossip whether so-and-so would "go down to-day." Therefore, I say, I am curious. I have carefully read over Edward King's admirable *Great South*, and I am perplexed as to where (exactly) the Southern States Company proposes to operate. I am well acquainted—without ever having seen them—with the great mineral wealth of Missouri, Alabama and Tennessee—iron ore yielding 56 to 66 per cent. of pure metal—and coal in Illinois in truly amazing bulk, as well as in the Warrior field "right down in Tennessee." I am, however, inquisitive, and, although not a Tite Barnacle, I "want to know, you know" all about the affair.

EXPORTS OF COAL.

The annual return relative to the coal exports again, as usual, places Newcastle-on-Tyne at the head of the list of ports in the United Kingdom from which coal is shipped to foreign destinations, Cardiff being the second. In the year 1874 the quantity of coal, cinders and patent fuel exported from Newcastle was 3,282,812 tons, and from Cardiff 3,011,765 tons; from all ports of Northumberland and Durham 5,852,631 tons, and from the ports of Wales 4,292,422 tons; the export from the whole of the United Kingdom reaching the large amount of 13,927,205 tons. The quantity of coals, cinders and culm shipped not for foreign parts, but coastways, from port to port of Great Britain, in 1874, was 9,609,224 tons; and in this traffic Cardiff loses its position, the shipment from that port being only 840,696 tons, but from Newcastle 2,255,414 tons, and the whole shipment from Welsh ports being but 2,278,780 tons, while the shipment from ports of Northumberland and Durham coastwise was 4,785,085 tons. Our shipments of coal to France and Germany constitute nearly one-third of our total export of coal to foreign countries and British possessions. At the last meeting of the Mersey Docks and Harbor Board it was stated that the exports of coal from Liverpool were as under. The total quantity of coal worked by the high level railway, the export tips and the low level was last year 214,000 tons, against 196,000 tons in 1874. With regard to Birkenhead, the total quantity last year amounted to no less than 1,094,000 tons, and in every point connected with the board's interests he thought there was an increase. The quantity shipped by the board's tips last year showed an increase of 41,000 tons, and the quantity weighed by their appliances an increase of 147,000 tons. The whole return was very satisfactory as to the working of the trade. The entire shipments of coal from this port amounted to upward of 1,300,000 tons per annum.

SCOTCH PIG IRON.

The Glasgow market has been dull since the termination of the Fair holidays, but prices have not gone back to any appreciable extent. Makers' brands are a shade easier, but warrants do not vary much from the 60/ to 60/3, at which they have for nearly a fortnight past been quoted. The makers are naturally restricting production as much as they possibly can, and there are now less furnaces in blast than is usual when the demand is anything like brisk. Connal's stores now hold about 32,660 tons, as against 25,930 at the corresponding date of last year. Shipments are fairly well sustained, freights being still unchanged on the basis of 5/, either by steamers or sailing vessels, from Glasgow to New York. The total shipments for this year, up to date, show an increase, in 1875, of 79,400 tons.

Writing from Glasgow, on July 30 (evening), Messrs. James Watson & Co. said: "Scotch pig iron remains steady in price, business being transacted from 60/6 to 59/6, cash, closing this afternoon buyers 60/, cash, sellers 60/3. Shipments last week were 11,282 tons, against 8483 tons in the corresponding week of 1874." Makers' prices are:

	No. 1.	No. 3.
G. M. B., at Glasgow	61/	60/
Gartsherrie, "	68/6	60/6
Coltness, "	68/6	63/
Summerlee, "	65/6	60/6
Langloan, "	66/	61/6
Carnbroe, "	63/	60/6
Calder, at Port Dundas	67/6	61/
Glengarnock, at Ardrossan	66/	61/
Eglinton, "	61/	60/
Dalmellington, "	61/	60/
Shotts, at Leith	68/6	63/6
Kinneil, at Bo'ness	62/6	59/

Messrs. Wm. Colvin (Glasgow, August 3), say: "The warrant market receded a little during the course of last week, and the price touched 59/6, but it rallied again, and closed on Friday with buyers at 60/. To day the market opened at 60/3, cash, advanced to 60/6, and closed with buyers at that price and sellers at 61/. Makers' iron is a little more plentiful, and some lots are being put in store. The current quotations are undernoted."

	Delivered alongside. No. 1.	No. 3.
G. M. B., at Glasgow	61/	59/6
Gartsherrie "	68/6	60/6
Coltness, "	69/	63/
Summerlee, "	65/	61/
Langloan, "	67/	61/
Carnbroe, "	62/6	60/6
Monkland "	61/	59/6
Clyde "	64/	59/6
Govan, at Broomielaw	61/	60/
Calder, at Port Dundas	68/	60/6
Glengarnock, at Ardrossan	66/	61/
Eglinton, "	60/6	59/6
Dalmellington, "	60/6	59/6
Carron, at Grangemouth, selected	67/6	..
Shotts, at Leith	68/	62/
Kinneil, at Bo'ness	62/	59/
Bar Iron	£8. 10/ to £9. 0/	
Nail Rods	£9. 0/.	

SHIPMENTS.

	Tons.
Week ending Aug. 1, 1874	11,153
" July 31, 1875	10,678
Decrease	475
Total increase for 1875	78,930

The prices current of Messrs. John E. Swan & Bros.' (Limited), Glasgow, July 30, say:

Glasgow Brands.	Furnaces B'wing, 117	Furnaces Out 40.	Furnaces Built, 157.	Prices. No. 1.	No. 3.	No. 4
Gartsherrie	13	3	16	68/	60/	62/6
Coltness	12	0	12	69/	62/6	..
Summerlee	6	2	8	65/	60/	63/
Langloan	7	1	8	66/	61/	64/
Govan	4	1	5	60/6	59/6	62/
Calder	2	6	8	*67/	61/	64/
Shotts { Bess'mer / Ordinary }	5	2	7	82/6	..	..
				68/	63/	63/
Carnbroe	4	2	6	62/6	60/	63/
Wishaw	2	1	3	..	..	..
Monkland	9	0	9	60/6	59/6	60/
Chapelhall				..	..	..
Clyde	6	0	6	64/	59/6	60/
Quarter-Clyde	4	1	5	60/6	59/6	60/

* f. o. b. Glasgow, 1/ per ton, extra.

Glasgow Warrants, 3-5 No. 1; 2-5 No. 3, g. m. b., 60/1½.

WEST COAST BRANDS—*f. o. b. Ardrossan.*

Glengarnock		7	2	9	65/6	60/6	62/6
Ardeer		4	1	5			
Eglinton	Brand'd	6	2	8			
Lugar		4	0	4	60/	59/	60/
Muirkirk	Egl'n	3	0	3			
Portland		3	3	6			
Dalmellington		6	2	8	60/	59/	59/

EAST COAST BRANDS—*f. o. b. in the Forth.*

Kinneil	3	1	4	61/	58/6	58/6
Almond	2	1	3	62/	59/	59/
Carron { Selct'd / Ordn'y }	5	1	6	67/6	..	..
				65/	..	..
Lochgelly	0	4	4	..	59/	59/
Lumphinnans	0	2	2	..	..	..
Bridgeness	0	2	2	..	..	..

Furnaces in blast in Scotland, July 30 ... 1875—117 / 1874—81

TRADES OF SHEFFIELD.

The general state of things in the iron trade remains very much as before, everybody echoing the complaints of his neighbors as to the prevalent dullness of trade. Hardly any one is venturesome enough to predict an amendment during the current quarter, there being, in fact, a widespread impression that we shall see no material amelioration of the existing condition of business prior to the advent of another year. This depressed view is being deepened, if anything, by the unfavorable reports from our agricultural districts, where the harvest prospects have assumed a gloomy hue in consequence of the rains and floods of the last fortnight. The reports from abroad are also sombre hued, and are not calculated to imbue the producers of agricultural implements, machines, or hardwares with confidence in the immediate future.

Pending what the next few weeks or months may bring forth, the producers of pig iron here are acting in unison with their brethren in other localities, by making an effort to get down wages, with which view the whole of the blast furnacemen at Sheffield, Parkgate, Elsecar, Thorncliffe, Sheepbridge, etc., have had notice given to them of an intention to reduce their rate of payment by 10 per cent. on and after the next pay day—a week hence. It is not supposed that they will offer any organized resistance; at all events no movement with that purport has as yet been made.

Pig iron of some qualities is weakening in price, hematite descriptions being especially noticeable as having fallen by from 2/6 to 12/6 per ton since my last communication was penned. The new quotations for this class of pigs are as under: Maryport "Hematite," No. 3, 77/6 (2/6 lower); No. 4, 77/6 (2/6 lower); No. 5, mottled and white, 77/6 (all 2/6 cheaper); "Bessemer," No. 1, 80/; No. 2, 77/6; and No. 3, 77/6—all 5/ per ton easier; Millom "Bessemer," 82/6; No. 2, 80/; and No. 3, 77/6; "Ordinary," No. 3, 77/6 (7/6 lower); No. 4, 77/6 (6/6 cheaper); No. 5, 77/6 (12/6 easier); mottled, 85/, and white, 82/6, the two latter being as before. These alterations should afford a certain measure of relief to the local producers of Bessemer material, and, secondarily, of steel rails. That they stand in need of some such assistance is pretty fully evinced by the fact that the rail manufacturers have for some time past been unable to make these articles except at figures which have been fully 12/6 to 15/ per ton higher than their competitors at Barrow and on the Mersey. These latter firms have many advantages for the ready shipment of foreign and colonial lots which houses hereabouts do not possess, hence the disadvantages under which the inland makers are laboring in the present dull state of trade.

Spiegeleisen is still being brought here from Germany, although iron of this class of a good and reliable quality has been and is being made in the district by John Brown & Co., Sheffield.

The foundries are not pushed with work, and it is expected that the annual reports, now about due, of certain companies engaged in this branch will show how difficult it has been during the past year to conduct their concerns so as to make even a passable comparison with the profits of the three preceding annual periods. At Stavely and one or two other establishments, nevertheless, a good deal of pipe work is still in hand. The Wombwell, South Yorkshire, Local Board is asking for tenders for about 5000 yards of 3 inch to 6 inch iron pipes, with sluice valves, etc., and the Morley Gas Company is seeking for tenders for the supply of a quantity of retorts, pipes, hydraulic mains and other gas works plant.

The leading brass founders of Sheffield and Rotherham have an abundance of orders in hand and on the books. Messrs. Guest & Chrimes, of Rotherham, are particularly busy on their gas, water and plumbers' special articles. They are also engaged in 'constructing a high pressure meter with a 12 inch inlet for the Wakefield Waterworks Company.

I hear that some experiments are at present being tried at the Wilton & Elsecar Ironworks (Messrs. W. & Geo. Dawes), South Yorkshire, in order to test the practicability of a new process for the smelting of iron in a manner which, if it can be carried out on a large scale, is said to be likely to upset all the existing methods of working. The information I have so far is to the effect that the trials have been fairly satisfactory up to the present stage.

Lord Fitzwilliam has decided that he will not reopen the Low Stubbin Colliery. The temporary four months' arrangement entered into between the coalowners and miners of the district will expire on Saturday, and it is an understood matter—to which I have alluded once or twice previously—that a further reduction of the men's wages will have to be made. The committee of the South Yorkshire and North Derbyshire Coalowners' Association (Limited), met at Sheffield on Monday, but so much business came before the meeting that there was not time to finish the discussion on the wages question. I believe I am correct, however, in stating that the intention is to notify a drop of either 15 or 20 per cent.

In cutlery there is hardly any change worth speaking of, but I am certainly of opinion that not a few of the firms are doing a better business, and in a better class of goods, than for some months previous. A good deal of this is on home account, but I gather that Australia, France, New Zealand and British North America, as well as certain of the South American markets, are sending in improved indents.

SOUTH STAFFORDSHIRE AND BIRMINGHAM.

In hoops and sheets suitable for hardwares a rather better business has been transacted during the week, but, generally speaking, there is no other alteration whatever. Quotations are a little quieter, and rule in favor of the customers who really have good orders to give out. Nominally, the rates are all unaltered on the basis of £10 for best bars, and £8 to £8. 2/6 for common. Fancy hardwares are selling tolerably well on account of Canada and the United States, as well as for the Russian, North German and extreme Northern markets. Edge tools and tinned hollow ware are being sent to Brazil, and a good many lots of miscellaneous tools and hardwares are being consigned to the Spanish and British West Indian Islands. Very little is doing in birding guns and iron tubes, but the lock and gas fitting departments are moderately busy. Lamps and chandeliers are readily disposed of, and Australia continues to send the Walsall district saddlery and harness manufacturers plenty of orders.

SOUTH WALES.

The iron trade of the principality remains at a low ebb, and hardly appears to have made any material advance since the first week after the resumption of work subsequent to the strike. A correspondent mentions that the failure of the South Wales Atlantic Company has excited a good deal of interest throughout the district. The principal shareholders were the Marquis of Bute, Sir W. G. Armstrong, Messrs. W. Menelaus, of Dowlais, and G. T. Clark, of Dowlais. The marquis, who held by far the largest share, had agreed to coal the vessels free of charge, but as the scheme was based upon the export of iron to the United States, it has, for the present, fallen to the ground.

THE METAL MARKETS

have again been quiet, with prices a little, if anything, somewhat lower.

Messrs. Von Dadelszen & North say: "*Copper.*—The price of Chili bars has declined £2 since our last, and the market is unsettled, with a downward tendency. Business reported from £80 down to £77. 10/, cash, for g. o. b., but the nearest price is £78. The charters for the first fortnight of this month are 2300 tons. A large quantity of Wallaroo reported (estimated at between 2000 and 3000 tons) sold to France, but the price has been kept secret. It is now held for £90, but lower offers would not be declined. Burra nominally £86. 10/; English steady. *Tin* has also declined. Straits has been sold from £78 to £77, which is our nearest price now. Australian as low as £74, but fine quality realizes £75. The Banca sale on the 28th went at an average of 48·35fl., equal to about £83, laid down here. Billiton remains at 46fl. English tin dull; ingots about £82 to £83. Tin plates are selling in small lots at previous rates. *Lead* firm; good soft English pig, £22. 5/ to £22. 10/. *Spelter.*—English firm at £25, delivered in Birmingham; hardly anything done in foreign; prices quite nominal. *Quicksilver* in good demand at £10 per bottle.

The *Mining Journal* remarks: "*Copper.*—On Tuesday and Wednesday the market was quiet, and quotations unchanged; but yesterday a fair business was done in Chili bars, named brands, at £79. 10/, ordinary cash terms; and g. o. b. £77. 10/ to £78 cash, and £78 with one month prompt. The demand for English copper is small. Tough is quoted £86; best selected, £87; India sheets, 4 by 4, £91; strong sheets, £92 to £93; Burra, £86. 10/; and there are buyers of Wallaroo to a limited extent at 98. 10/. Yellow Metal is quoted 7¼d to 8d. *Lead.*—There is no variation to notice in the position of this metal. Lead is held firmly at previous quotations. Good soft English pig, £22 to £22. 5/; soft Spanish, without silver, £21. 10/ to £21. 15/. *Zinc.*—London rolled, 110 tons realized £28. *Quicksilver.*—This metal continues to rule at £10 per bottle. *Tin.*—The market has continued to rule somewhat in buyers' favor during the week, and as fractionally lower prices were accepted, a fair amount of business has ensued. The event of the week has been the Dutch sales of Banca on the 28th inst., 22,600 slabs sold at an average of 48·35fl., equal to nearly £83 laid down here. Upon the announcement of the sale the market became dull, and has continued so. Straits is now quoted £76. 10/; Australian £74. 10/ to £75, and English ingots £81 to £82."

Messrs Berger Spence & Co's circular of to-day reports: "There is no alteration in manufactured iron; prices are very irregular. Lead has sustained the advance, and closes the week steady. In tin there is no change to record.

Messrs. Smith, Owen & Co.'s circular, London, July 29, gives the following quotations for Swedish charcoal iron: "To arrive—Rolled horse nail rods, ordinary sizes, squares, £17; ditto, rounds, £17. 10/; Rolled bar iron, ordinary sizes, 13-16 inch to 2 inch squares, 1 7-16 inch to 5 in. wide by 5 16 in., or thicker, flats, £16. 10/; Hammered bar iron, ordinary sizes ⅝ inch to 2 inch squares, 1 11-16 inch to 5 inches wide by 7-16, ½ and ⅝ inch, also 1⅝ by ½ and ⅝, and 1½ by ⅝ inch flats, £17; ditto, superior quality for machine purposes, £18; ditto, short bars 3 inches by ⅝ inch 80 to 100 bars per ton, £16; ditto, 3 inches by ½ inch, ditto, £16; ditto, ordinary lengths, 3 inches by ⅝ inch, £16. 10/; ditto, 3 inches by ½ inch, £16. 10/; ditto assortments far India, &c., £16. 10/; Keg steel, hammered, £20; ditto, rolled, £19. 10/; Steel in cases or bundles, £20; Blooms, £11. 10/; Billets, £16; Pig iron, £6; above prices ex ship, Thames or Hull, less 2½ per cent. discount; ex ship, Liverpool, £7. 6/ per ton extra."

Messrs. Warner, Walduck & Co.'s prices current: "Railway chairs and bowl sleepers, £4. 5/; castings, £5. 15/, at works; 'champion' bars, £10; hoops, £11; sheets, £12. 10/; charcoal bars, £21; homogeneous sheets, £32, in London; bolts and nuts, £17. 10/; spikes and rivets, £12 15/, in London; solid drawn steel tubes from 1/ per foot. *Tin Plates.*—'Hendy' charcoal, extra fine quality, 36/ per box; 'Gower' charcoal, 33/ per box; 'Rhos' coke, 26/ per box; tinned sheets, 42/ per cwt.; Black sheets, 20/ per cwt.; Rolled sheet brass, 9¼d. per lb.; brass tubes, 11d. per lb.; copper tubes, 12¼d. per lb.; brass wire, 9¼d. per lb.; copper wire, 12¼d. per lb."

Messrs. James & Shakespeare report thus as to "*Tin.*—English continues dull, and purchases can be made on easier terms. Foreign descriptions are nominally unchanged, but the market has been less active since Friday last, buyers being apparently desirous of waiting the further course of events before entering upon fresh operations, and it would be impossible to effect any important sales, except at a reduction from the existing quotations, to which decline holders do not at present seem willing to respond. *Tin Plates* (in Liverpool) 6d. less; Charcoal, I. C. (f. o. b. London), 30/ to 36/ per box; Coke, I. C. (f. o. b. London), 22/ to 27/ per box."

Messrs. J. H. Austin & Co.'s, London, rail circular gives these prices, &c.: "*Rails.*—American, 50 lbs. to 60 lbs. per yard, £6. 15/ to £7 per ton, f. o. b. Wales; ditto, £6. 15/ to £7, East Coast. Russian and similar, 60 lbs. to 75 lbs., £6. 17/6, f. o. b. Wales; ditto, £6. 17/6 to £7. 2/6, East Coast. Street Rails, £7. 10 to £8. 10/, f. o. b. Tyne and Tees. Steel Rails, £9. 17/6 to £10. 2/6, f. o. b. Wales; ditto, £10. 5/ to £10. 15/, Liverpool or Hull."

End of an Important Stove Suit.

The Albany *Argus* of the 14th inst. says: The case of Carter and Dwyer against Perry & Company, involving the question of the right to a patent for the Argand, one of the most noted base burning parlor stoves ever constructed, has become of considerable public interest, and particularly to our own citizens, and we therefore take pleasure in presenting a synopsis of the decision:

The magnitude of the case may be inferred from the fact that, during the past twelve months, nearly six thousand printed pages of testimony have been taken, and that the costs and expenses on both sides exceed $25,000.

It has been most stubbornly contested by Mr. John S. Perry for his firm, and by eminent counsel for Carter and Dwyer, the nominal plaintiffs, the real party being an association composed of seventeen wealthy firms, who combined for the purpose of contesting this case.

The opinion, pronounced by the Hon. M. B. Phillipp, is clear, concise and to the point. Among other things he says:

"Assuming that the evidence proves that Carter made the exhibits at the time alleged, a fact, however, of which I am by no means convinced, he would not, under the law as above adverted to, be entitled to judgment of priority as against Perry, since seven years elapsed between the conception of the invention and its completion by reduction to use; this delay being principally to his desire to hold the conception for new trade and to test his invention more practically. As between him and Perry, I cannot hold otherwise than that the evidence proves that Perry is, in contemplation of law, the prior inventor of the first subject matter." * * *

"Dwyer, in his testimony, swears that he made the invention forming the second subject matter, about November, 1873, and that it was reduced to practice some two months afterward. * * *

"The evidence proves that Dickey embodied the invention in the stoves made in the same month and year, and that he is the first inventor of the second subject matter." * *

"A large amount of testimony has been taken concerning certain stoves made by Elihu Smith prior to the date set up by Perry and Dickey, which it is contended on the one side and denied on the other, contain the inventions in dispute. After an examination of the exhibits presented, I am of the opinion, from the whole evidence in reference to them, that they do not embody the inventions in dispute."

This would appear to settle the question that John S. Perry and Andrew Dickey are the true and first inventors of the Argand stove.

Hon. M. D. Leggett, of Cleveland, Ohio, and Mr. John S. Perry appeared for Perry & Co., and Col. Thomas S. Sprague, of Detroit, E. J. Bennett, Esq., of Albany, and Col. George W. Dyer, of Washington, appeared for the association.

The Ivory Trade.

The following article, translated for *The Iron Age* from the *Courrier des Etats Unis*, will be of especial interest to the manufacturers of cutlery and other large consumers of ivory:

The quantity of ivory annually imported into the United Kingdom reaches 650 tons, 350 of which are consumed and the balance exported. The cutlery manufacturers of Sheffield alone use 200 tons per annum. The average weight of tusks is 38 pounds; the average value, £62, 10/ the 100 kilos. The tusks range in weight between 1 and 165 pounds; the range of value is between £57 and £68 the 100 kilos. At New York the price ranges between $2·25 and $3·75 per pound; it is duty free.

There are required the tusks of 50,000 elephants to make up the annual importation of Great Britain alone. With this figure before us we can form some idea of the slaughter that is going on to supply the markets of the world, a most extensive trade being carried on to other portions of Europe and to this country, direct. Aside from this trade there is a most active traffic doing between Africa and the Asiatic countries.

Bombay and Zanzibar annually export 160 tons; Alexandria and Malta distribute 180; the West Coast of Africa exports 20 tons; the Cape, 50; and Mozambique, 14. Bombay draws its supply from all the Southern countries of Asia and the East and West Coast of Africa, a large portion being shipped from there to China and the remaining markets of India, the balance being sent to Europe. Alexandria and Malta get their ivory from Northern and Central Africa, Egypt and the banks of the Nile generally.

Africa, through Zanzibar, forwards the largest tusks. The quality of this ivory is good in color and texture; it is soft and easily wrought, nor does it split. Ivory from Ambriz, through the river Gaboon, from posts south of the equator in Africa, is called "silver gray," and preserves its whiteness after being permanently exposed to the open air, never turning yellow, nor looking worn like Asiatic and East African ivory. It commands from $3 to $3·25 at New York, and is preferred by many.

For carvings and general ornamental work, the Siam ivory is in great request, being soft and of a handsome transparent grain. The Mozambique and Cape tusks seldom exceed 70 pounds.

Occasionally some tusks of fossile ivory are found in the arctic regions of Siberia. These tusks date from antediluvian ages, and are met with imbedded in the ice. They are very large, some of them covered with hair at the roots, and in as good a condition to be turned as any contemporaneous ivory.

Another Iron Failure in England.

LONDON, Aug. 13.

The Stockton Rail Mill Company has suspended in consequence of the failure of Shaw & Thompson, the iron merchants. The liabilities of the company are estimated at $500,000.

The Hamburg Observatory.—The *Exchange Gazette*, of Berlin, says that the organization of the naval observatory at Hamburgh is now completed. At its head is a director, and it is divided into three sections, each with its own chief. The first section has to collect and publish information as to maritime meteorology and oceanography in connection with practical navigation. It is, therefore, chiefly occupied in the preparation of weather charts, and in collecting and applying the materials thereby obtained. It is also to be placed in uninterrupted communication with nautical men, to give them advice, and to supply them with all kinds of information relative to seamanship, for which purpose the section is abundantly supplied with maps, charts, &c. The second section is charged with the more literary portion of the work of the observatory. It has to prepare reports, to write scientific works and articles for the monthly organ of the observatory, the *Annalen der Hydrographie*, and to publish accounts of the results achieved by experiments in coast meteorology and storm signalling. It has also to test the instruments used for the meteorological observations, such as aneroid barometers, thermometers, &c., and to keep records of the observations. Both sea captains and engineers will have the opportunity in this section of studying the operation of the instruments, and of discovering defects and repairing them. The third section is devoted exclusively to coast meteorology and storm signaling and a number of meteorological stations have been erected in connection with it along the whole of the coast from Memel to Borkrum. All these stations communicate by telegraph with the central observatory, which also keeps up a constant communication with the meteorological institutions of Russia, France, Sweden, Norway, Austria, Denmark, Holland and England.

Attention is directed to the advertisement of the Empire Iron Clad Paint Company, on the 32d page. The goods manufactured by this Company have been before the trade for over ten years. We are informed that these paints are made from the hardest and purest iron ore. Three colors are produced—dark, a reddish brown and a light brown. It is specially adapted for painting Railroad Cars, Engines, Bridges, Buildings, Roofs, Agricultural Implements, Oil Tanks, Barrels, etc., being, it is claimed, more durable and considerably cheaper than red lead.

Schall's Furnace, in Montgomery county, Pa., is in full blast, and it is expected that the other portions of the mills will resume operations early in the fall.

The Philadelphia and Reading Coal and Iron Company have reduced the rents of their workmen from twenty to thirty per cent., at and near Mahanoy.

Unarmored Ships.

After England has got an immense fleet of powerful armored vessels, and spent an enormous amount of money upon them, the English public are periodically seized with a fear that armor is not the best thing after all for seagoing ships. Just now the English newspapers are suffering from a severe attack of this agony. Mr. L. Brassey, M. P., has recently published a pamphlet on the subject, and one of our exchanges says of it: "We cannot but allow it to be both valuable in itself and evidently carefully written. Mr. Brassey very rightly starts with the assumption that the construction of an armored fleet does not make unarmored ships the less necessary. Many naval critics contend that even thin armor is better than none at all, on account of the moral support which it is supposed to afford."

In spite of her treaty against privateering, Great Britain greatly fears that it would be a word and a blow on the declaration of war, "and that as our mercantile marine would be at once attacked by an enemy's privateers, it is absolutely necessary that we should be well provided ourselves with cruisers able not only to contend with but to drive hostile vessels from the seas, and to perform what has happily been called the duty of ocean police."

Ironclads are indeed able to keep the sea for a considerable time, and could even, if it were necessary to employ them on such a service, be used for convoy duty. It would certainly be a great waste of material to use them for such a purpose; they would be useful merely for defense, since their deficiency in point of speed would render them useless for offensive warfare; and that offense is as necessary as mere defense, was admitted by Admiral Porter before the committee of Congress, for when speaking of the United States navy at the commencement of the civil war he confessed that the ships they had could catch nothing, all the ironclads being only suitable for harbor defense or attack on forts.

Mr. Brassey thinks that in case of a war with Great Britain or France that the powers of the United States would be exerted against the commerce of Great Britain and her neighbors, as the case might be; and, indeed, all former maritime wars have shown that this is the most vulnerable point at which to strike a blow, for, as Baron Grivel, of the French service, remarked, in the event of war their aim would not be to contend with the "20,000 guns of our fighting navy," but to pursue the "50,000 merchant ships" which are continually engaged in transporting the wealth of England over the watery plain. Mr. Brassey, therefore, assumes that with both France or America the principal object would be to destroy by means of a privateering war the great source of our national industry, and thus to bring on a state of commercial and financial suffering.

To this we might reply that this is probably the result of a guilty conscience. Alabamas and Shenandoahs are even fresher in the memory of foreigners than in ours. The indemnity touched the sorest point of England's national honor, her pocket, and she fears the subject in any form.

Starting with the assumption that privateering is the method by which war will be carried on upon the ocean, he comes to the conclusion that large ships are not what are wanted, and turns his attention to the ships necessary to contend with merchant steamers converted into fast cruisers The consideration of this question has led him to arrive at the conclusion that it is not large ships that we want; for, taking it for granted that the privateers with which we shall have to deal will be mail steamers converted into lightly armed men-of-war, he considers it is not necessary to build, at an enormous cost, special vessels, when vessels like the Cunard steamers, which he considers would be much more efficient for the same service, could be employed. Mr. Brassey affirms that though the Cunard steamers cannot attain th extreme speed of the Raleigh, still they can maintain a speed of 14 knots for a much longer period, and in coal carrying capacity are infinitely superior.

During the "late unpleasantness" in this country a large number of merchant steamers were converted into light cruisers, but the extra weight put into them, and the increase in draught, generally rendered them slow, and, to quote from an English paper, "all things considered, then, we confess we do not feel by any means confident that it would be so easy to convert an ocean steamer into a war ship as it is we sometimes imagine."

England, it seems, has made the mistake of building high speed vessels of very large tonnage. In a debate in Parliament, in 1866, Mr. Graves said that "we wanted swift handy vessels of moderate size, capable of remaining at sea twelve months under canvas, and of steaming at a high rate of speed on an emergency."

Sir Spencer Robinson, in speaking on a paper by a Mr. Barnaby, in 1874, before the Institution of Naval Architects, said "that, although he admitted that speed was an excessive element of cost, yet it was the very object, aim, and purpose for which small unarmored ships are built, and it was with a feeling of anxiety and hesitation that he saw brought forward the notion that a speed of 13½ knots is the greatest speed which small unarmored vessels are intended to aim at."

For convoying and privateering a high speed is necessary, and while merchant steamers may in many respects be very fair vessels for converting into cruisers, still, few, if any, of them have speed sufficient to enable them to be of any considerable practical value. One English gentleman thinks that half a knot greater speed than the fastest mail steamer is sufficient to enable a vessel to be used for the interruption of mail service and similar service. In other words, he considers 15 to 15¼ knots the extreme speed necessary for ships designed to protect and interrupt commerce; and he thinks, therefore, that if we wish to keep within moderate dimensions, we should be satisfied with the speed strictly necessary to disturb an enemy's commerce. Still, he admits that the task of capturing the armed cruisers of the enemy would devolve on ships of extreme speed. Mr. Brassey gives the history of the Wampanoag scare, and especially draws to it the attention of those officers who, he says, in their excess of zeal for the efficiency of their own service, seem disposed to require that every ship built for the British navy should be without a rival in every quality which can contribute to the efficiency of a ship of war.

In commenting upon this, one of our foreign exchanges makes the following comments: "It is true that the reports of the power and speed expected to be obtained out of the American corvettes of the Wampanoag class, which induced the English government to propose laying down seven ships like the Inconstant, proved to be much overstated, and, therefore, our naval administrators are accused of having been most unnecessarily alarmed. Had it, however, turned out exactly opposite, and while all their hoped for qualities had been realized in the case of the American corvettes, we had remained inactive, and not provided ourselves with a single vessel able to cope with them, there would rightly have been no end to the obloquy with which our Admiralty would have been covered for allowing us to become so unprepared to hold our own on the high seas."

After all that has been said on both sides for and against armored vessels, it is not improbable, in view of the development of the torpedo service, that armor on ships, like the armor upon men, will be increased in thickness to no purpose, and at last thrown away entirely, and ships, like men, go into battle protected only by their skill and speed.

Obituary.—Mr. Frank Cowan, of Greensburg, Pa., editor of Frank Cowan's paper, sends us an announcement of what he is pleased to term his "Editorial demise." His paper will be published no more; or, if at all, by another proprietor, and under another name. We frankly confess we are sorry to hear it. Mr. Cowan is a gentleman of very genial temper, and eccentric in everything. This paper was a good national joke, from the name down, and, if not always brilliantly witty, was generally entertaining. May it rest in peace, awaiting the resurrection, which is hinted at as likely to take place within a few weeks. Mr. Cowan will practice law at Greensburg.

Five or six machines for the manufacture of coal from coal dust are being manufactured at the Harrisburg Foundry and Machine Works.

STANDARD
32 Cal.
Just Out.

Prices Reduced for Little Joker, STANDARD, Paragon, Tycoon & Whitney's Revolvers.

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HERCULES IRON CUTTER.

No. 1, weight	16 lbs.,	cuts ⅜x2 inch,	or ½ inch round or square	....Price	$25·00
No. 2, "	165 "	½x3 "	¾ " "	"	50·00
No. 3, "	350 "	¾x4 "	1 " "	"	75·00

This is by far the most powerful Iron Cutter in use which can be worked by hand, having three times the capacity of any other machine which sells at the same price. The No. 3 machine occupies a space of 12x30 inches; when in use additional space must be had for the lever to work in. We send two sets of knives with each machine—one for square and flat, the other for round iron and steel. By using the knives adapted to it, round iron is cut without being flattened. One man can cut the largest size iron named above, but two would be required for steady work. It does not take a minute to change the knives or to shift the machine from large to small sizes.

AUGUSTA, GA., March 3, 1875.

MILLERS FALLS CO.—Enclosed find draft for amount of invoice, January 7. We would have sent the amount before, but did not have an opportunity of trying the Iron Cutter until a few days ago. It is one of the best machines we ever saw. Yours, truly, MOORE & Co.

Office of the ATHENS FOUNDRY AND MACHINE WORKS,
ATHENS, GA., February 18, 1875.

H. L. PRATT, President.—Dear Sir: Enclosed find draft made payable to your order by Messrs. Childs, Nickerson & Co., in payment for Iron Cutter. We have put our Cutter to good service, and find it cuts readily 1¼ round, and 3½ x ⅝ square iron. C., N. & Co. are pleased with theirs, say it will save many a blow and cold chisel in their iron house.

Truly, yours, R. NICKERSON, Agent.

We make a satisfactory discount to dealers, and warrant the cutters to do all which we claim for them. Send for prices.

Millers Falls Company,

No. 78 Beekman Street, New York,

Sole Proprietors and Manufacturers of the

Barber Self-Fitting Bit Braces, Millers Falls Vises,
Improved Angular and Ratchet Drilling Machines,
TUBE SCRAPERS, FAMILY TOOL CHESTS,
Patent Adjustable Tool Holders, Mitre Boxes, Ratchet Braces, Breast Drills, etc.

The Fisher & Norris Eagle Anvil Works.

(ESTABLISHED) 1843.

These Anvils are manufactured at the oldest Anvil Factory in this country They are *superior* to the best English, or other Anvils, on account of the peculiar process of their manufacture (invented and used only by this concern), and from the quality of the materials employed.

The best English Anvils, after a time, become hollowing on the face by continued hammering in use, on account of the fibrous nature of the wrought iron—causing it to "settle" under the face.

The body of the Eagle Anvils being of crystallized iron, no such settling can ever occur; and the steel face, therefore, remains perfectly true. Also, it has the great advantage, that being of a more *solid* material, and consequently with less rebound, the piece being forged receives the full effect of the hammer, instead of a part of it being wasted by the rebound, as with a wrought iron anvil. An equal amount of work can, therefore, be done on this Anvil with a *hammer one fifth lighter* than that required when using a wrought iron anvil which is more elastic.

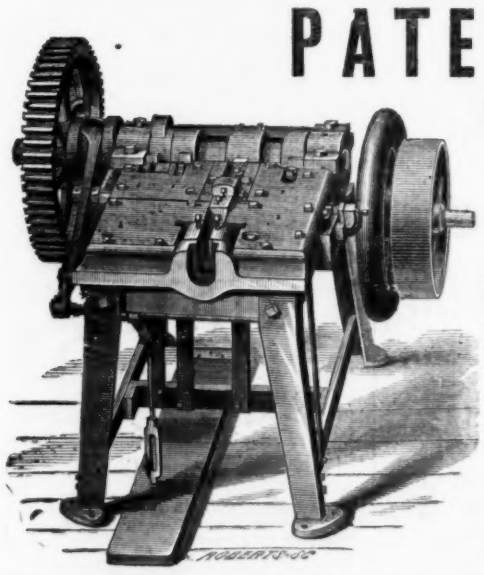
The working surface is in *one piece* of JESSUP'S BEST TOOL CAST STEEL, which, after being accurately ground, is hardened and given the proper temper for the heaviest work. The *horn* is covered with and its extremity made *entirely of steel*. The body of the Anvil is of the strongest grade of American iron, to which the cast steel face is *warranted to be thoroughly welded and not to come off*.

REDUCED PRICE LIST. ANVILS weighing 100 lbs. to 800 lbs., 11c. per lb.

Smaller Anvils, ("Minims.")

No.	0	1	2	3	4	5	6	7	8	9
Weighing about	10 lb.	15 lb.	20 lb.	30 lb.	40 lb.	50 lb.	60 lb.	70 lb.	80 lb.	90 lb.
Price,	$3·50	$4·25	$5·00	$5·50	$6·50	$7·50	$8·00	$9·00	$10·00	$10·50

PATENT BOLT HEADER



Every Railroad Shop, Car Shop, Machine & Bolt Shop, Mower, Reaper & Plow Manufacturer, should have one.

Three sizes of these machines are made, viz:

No. 1 will make bolts from ⅛ inch down.
No. 2 " " ¾ "
No. 3 " " 1¼ "

The three sizes if run together would require from 2 to 2½ horse-power.

The variety of shapes that can be made are only limited by the ingenuity of the owner. A few minutes only are required to make a change from one shape or size to another. All dies are made of the best Cast Steel, and can be redressed many times.

T. Button, Countersunk, Rivet and Round Head; Plow and Track Bolts, &c., are made at one revolution. Square and Hexagon Heads require from 3 to 5 revolutions.

For Simplicity, Durability and Compactness it has no equal.

A Boy can learn to run it in a few hours. The bolt is made on the heated bar and cut off in the machine to any length from 1 to 10 inches; if greater lengths are desired, they should be cut before heating. Either Round or Square Iron may be used.

Will use up as much iron as can be heated in any ordinary blast fire.

For prices and further particulars, address,

WILLIAM GARDNER'S SONS,

575 Grand & 414 Madison Sts., N. Y

Sole Agents for THE EMPIRE FILE WORKS,

HAND-CUT FILES AND RASPS.

OLIVER'S CHILLED PLOWS.

These implements, though but four years before the public in their present form, show the following remarkable record:

1506 were sold in the season of 1871. 7472 were sold in the season of 1873. 30,000 will be made for the season of 1875.
3049 " " " 1872. 14,976 " " " 1874.

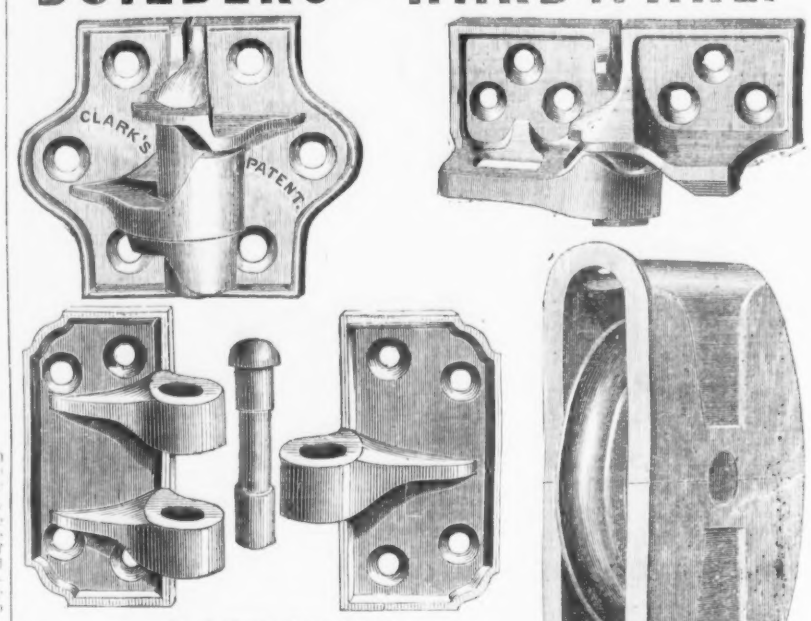
For full descriptive circulars, address,

SOUTH BEND IRON WORKS, South Bend, Ind.

CLARK & CO.,

MANUFACTURERS OF

BUILDERS' HARDWARE.



No. 1 Upper Gate Hinge.

Send for Illustrated Catalogue and Price List.

BUFFALO, N. Y.

MACK & CO.

Successors to

D. R. BARTON & CO.,

At the Old Stand, 136 Mill St., ROCHESTER, N. Y.

Sole Manufacturers of the

D. R. BARTON & CO. BRAND OF

Carpenters' & Coopers' Tools.

All goods stamped **D. R. Barton & Co.**, are made at the Old Works, and by the old men, from the Best English Steel, manufactured for us by Thos. Firth & Sons and Wm. Jessop & Sons, and fully warranted.

Goods stamped **D. R. Barton** are not made at the Old Works of the company, but by a new stock company, formed about the time of Mr. Barton's decease.

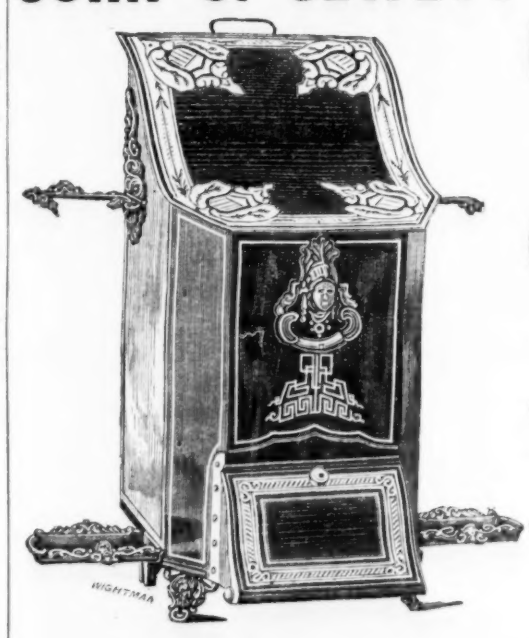
JOHN C. JEWETT & SONS,

Buffalo, N. Y.

Manufacturers of

Jewett's Patent
FIRE SET
Coal Vases
AND
Utility Covered
AND
Tunnel Hods.

Send for Illustrated Catalogue.



Utility Covered HODS.

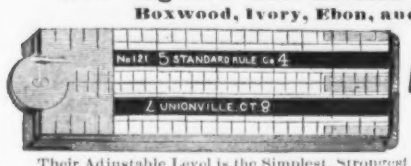
BEST COAL HOD IN THE WORLD.

CAST STEEL CORN HOOKS.

The blades are polished and ground to Sharp Cutting Edge ready for use. The handles are of first-class timber with square end, and are firmly strapped and rivetted to the Blade, and are as pronounced by the trade the Best and most durable article in the market. Packed in barrels of seven dozen each.

Sole Agents for STANDARD RULE CO.'S

Boxwood, Ivory, Ebon, and Patent Party Color



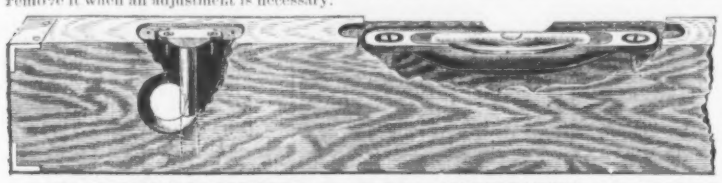
RULES,

Adjustable & Non-Adjustable

PLUMBS & LEVELS.

Their Adjustable Level is the Simplest, Strongest and most Reliable one in the market.

The Spirit Glass is in a metallic case of such a shape at each end as to exactly correspond and bear easily upon perfect curve of a recess formed in the stock for its reception. The case is secured at each end to the stock by a strong screw. When the Level requires adjustment the top plate is removed, one screw is loosened and the other driven until required position is reached. The Plumb Glass is arranged on the same principle. The Top Plate protects the adjustment against thoughtless or mischievous persons, the security being well worth the trouble required to remove it when an adjustment is necessary.



Agents for *COBB & DREW'S* Rivets and Tacks. *RIPLEY MFG. CO.*, Mallets, Mouse Traps, Bung Starts, &c. *ATWATER MFG. CO.*, Carriage Hardware, Clips, Couplings, &c. *VALLEY HARDWARE CO.*, Bow Pins, Bull Rings, Saw Setts, &c. *AMERICAN LOCK MFG. CO.*, Store Door Locks, Padlocks, &c. *R. HUMPHREY & CO.*, Spoons, Ferrules and Tin Washers.

MANUFACTURERS OF

Nuts, Washers, Machine, Stove, Carriage, Plow and Agricultural Bolts, &c., &c.

UNION NUT CO., 78 Beekman Street, N. Y.

Factory, UNIONVILLE, CONN.

BAILEY'S PATENT ADJUSTABLE PLANES.

IRON AND WOOD. 30 different styles.. 100,000 ALREADY IN USE.

Smooth Planes,
Jack Planes,
Fore Planes,
Jointer Planes,
Block Planes,
Rabbet Planes,
Circular Planes.

Carpenters,
Cabinet Makers,
Car Builders,
Carriage Makers,
Millwrights,
Wheelwrights,
All Use them

[No. 9¼ Excelsior Block Plane, $2 00.]

Manufactured by the **STANLEY RULE & LEVEL CO.,**

Factories: New Britain, Conn. Warerooms: 35 Chambers Street, New York.

Ecton Mills Genuine London TURKEY EMERY.

TRADE MARK.

ABBOTT & HOWARD, Agents for the United States.

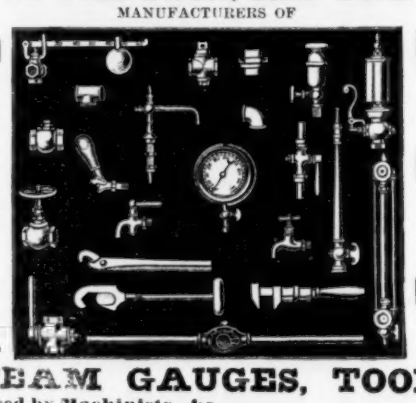
81 John Street, New York. 35 Oliver Street, Boston.

EATON, COLE & BURNHAM CO.,

58 John Street, New York.

MANUFACTURERS OF

Wrought Iron **PIPE,** Cast Iron FLANGED PIPE, **Cast Iron** RADIATORS and BOILERS.



Brass & Iron **STEAM** Gas & Water FITTINGS. PLUMBERS' MATERIALS.

STEAM GAUGES, TOOLS,

And all Supplies used by Machinists, &c.

TRADE

MARK

HOUSE ESTABLISHED, 1862.

GEORGE S. FALES,

SUCCESSOR TO

FAIRBROTHER & FALES

Sole Owner and Manufacturer of

Page's Patent Lace Leather,

And Manufacturer of

OAK BELTING,

Also, Picker or Moccasin Leather, for Boot and Shoe Packs.

Angular Belting and Pullies made to order.

PAWTUCKET, R. I.

Ask for Star Stamped Lace Leather.

GOLD MEDAL Non-Extensible Razor Belt.

PATENTED JULY 25, 1871.

RE-ISSUED MAY 13, 1873, and JUNE 9, 1874.

In this Strap the liability of the leather to stretch and become loose and porous is prevented by the use of a patented non-extensible base, which supports the leather and secures

PERMANENT ELASTICITY.

We make this style with single rod, double rod, and with [illegible] and intend that it shall, in quality, compare favorably with our other well known brands.

BENJAMIN F. BADGER, Manufacturer,

Badger Place, Charlestown, Mass.

Pipe, Fittings, &c.

WROUGHT IRON

INDESTRUCTIBLE ENAMELED PIPE

For Water, Gas, Sewage & Soil Pipe.

Manufactured Solely by

NATIONAL TUBE WORKS CO.,

Also Lap Welded Steam & Gas Pipe & Boiler Tubes.

Tubing & Casing for Artesian, Oil & Salt Wells (with Patent Protecting Coupling),

A Specialty made of Large Wrought Iron Lap Welded Tubes, 8 in. to 14 in. diameter.

MACK'S PATENT INJECTOR, ETC.

Works and Offices at BOSTON, MASS., and McKEESPORT, PENN.

OFFICES AND WAREHOUSES,

New York, 78 William Street. Chicago, 112, 114 & 116 Lake Street.
Cincinnati, 119, 121 & 123 Pearl Street.

McNab & Harlin Mfg. Co.,

MANUFACTURERS OF

BRASS COCKS

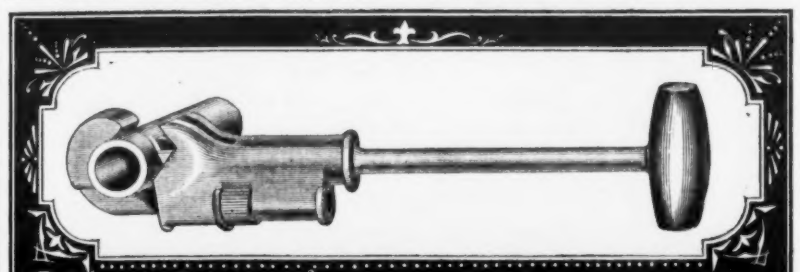
For STEAM, WATER and GAS.

Wrought Iron Pipe & Fittings, Plain and Galvanized

PLUMBERS' MATERIALS.

Illustrated Catalogue sent by express to the Trade on application.

Factory, Paterson, N. J. 56 John Street, N. Y.



The Acme Pipe Cutter.

MADE ENTIRELY OF SOLID CAST STEEL.

Cuts Wrought Iron, Brass and Copper Pipes, Round Iron &c perfectly true without leaving burr on pipe, contracting or splitting it. Cuts out a chip similar to a lathe tool. The knife may be removed and ground. Send for descriptive circular to manufacturers.

Pancoast and Maule PHILADELPHIA PA.

WM. ESTERBROOK,

Wholesale Manufacturer of

Coal Hods,

FIRE SHOVELS, Etc.

311 Cherry St., PHILADELPHIA.

CAST IRON PIPES

FOR WATER AND GAS.

Branches Retorts, &c.

Warren Foundry & Machine Co.,

PHILLIPSBURG NEW JERSEY.

GEORGE BARNES & CO.,

Manufacturers, Syracuse, N. Y.

ENCAUSTIC TILES.

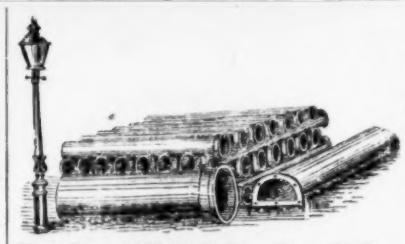
ALEXANDER FINDLAY,

Importer,

99 MAIDEN LANE, N. Y.

Sole Agent in the U. S. for

CRAVEN, DUNNILL & CO., (Limited.)



R. D. WOOD & CO.,

Philadelphia,

Manufacturers of

Cast Iron Pipe

FOR WATER AND GAS.

Lamp Posts, Valves, &c.,

Mathew's Pat. Anti-Freezing Hydrants.

400 CHESTNUT STREET.

CHAPMAN VALVE MFG CO.,

77 Kilby Street, Boston.

Water,

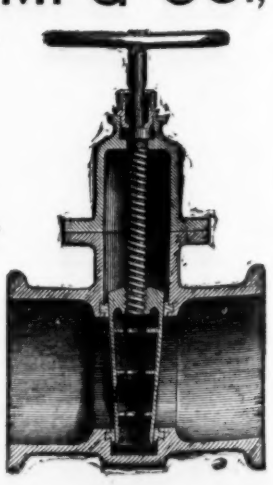
Gas

AND

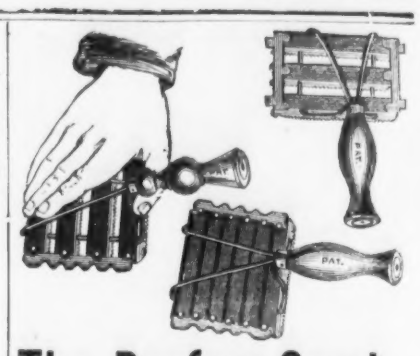
Steam

VALVES.

Hydrants.



Send for circular.



The Perfect Comb.

We call your attention specially to our new patent endless wire frame comb. The result of a long series of experiments, made with a view to meeting all the requirements of a *Perfect Comb*. It is better, stronger, and more durable than any ever before invented. The raised wire shank gives what has never before been attained, viz: a rest and brace for the thumb, in such a position that the hand cannot come in contact with the horse while using the comb. The wire braces which run from the shank over the back to the front teeth give strength and durability in a direction never heretofore attained, and at the same time serve as an extra handle; and when clasped by the fingers in connection with the raised shank the comb is more firmly, easily, and completely held, and with much less fatigue to the hand than is possible in any other formation—in short, it needs but a trial to vindicate its name: **The Perfect Comb.**

THE LAWRENCE COMB CO.

Factory and Office,

382 2d Ave., cor. 22d St., N. Y.

WILLIAMS WHITE & CHURCHILL

Successors to

MACKRELL & RICHARDSON MFG. COMPANY

Manufacturers of

Builders' Hardware,

Locks, Hinges, Hooks and Staples,
Awning Hooks, Meat Hooks, Pincers,
Champion Noiseless Pulleys,

CHAIN PULLEYS &c.

Factory, cor. Flushing and Nostrand Avenues BROOKLYN.

Warehouse, 73 Warren St., N. Y.

WM. S. CARR & CO.

Sole Manufacturers of

CARR'S

Patent Water Closets,

PUMPS,

Cabinet Wood Work, Vases, &c

106, 108 & 110 Centre Street,

Factory, Mott Haven, New York.

J. AUSTIN & CO.,

168 Fulton Street, N. Y.,

Proprietors and Manufacturers of

WHEATCROFT'S SELF-ADJUSTING

Pipe Wrench,

AND

Scripture's Funnel Top

MACHINE OILERS.

Dealers in

STEAM AND GAS FITTERS TOOLS.

RIEHLE BROTHERS,

Ninth Street, near Coates, Philadelphia.

New York Store, 93 Liberty Street.

Pittsburgh Store, 285 Liberty Street

"Patented" Furnace Charging Scale.

Double Beam R. R. Track Scale, Compound Parallel Crane Beams, &c. Patented First Power Lever Wagon Scales. Testing Machines any capacity.

The Iron Age Directory

and index to Advertisements.

Relics in Independence Square.

The Philadelphia *Ledger* gives the following account of the relics recently found in Independence Square:

The workmen employed in breaking up the ground in Independence Square preparatory to its improvement, have dug up a number of relics of various kinds. The articles unearthed consist mainly of old gold, silver and copper coins, handles of glasses, pieces of iron, small cannon balls and other articles, found embedded about one foot beneath the surface of the ground, and other curious things dug up at a greater depth. An examination of the localities in the square where the articles were found, indicates that most of them had been lost or dropped by persons passing through the inclosure, and then trodden beneath the surface. These coins, etc., were nearly all found in the avenues or walks of the square, while other articles were dug up some distance below the surface.

Among the coins found were two gold ones, one containing a head of Frederick Wilhelm, of Prussia, with the date illegible, and the other a Russian dollar, dated 1796; three American pennies, dated 1796, 1798 and 1803, respectively; an old pillar 6¼ cent silver piece of 1798, and some half cents of about the same date. A number of bones, apparently human, and a coffin handle, were turned up near the northern part of the main avenue, and also some pieces of wood that looked like portions of a coffin.

Near the old sycamore tree, in the southwestern portion of the square, was discovered an old curb line, composed of bricks, and near it was a mortar bed, with what was evidently a grave beneath it. This grave and mortar bed was about 6 feet long and 2 feet 6 inches in width and nearly 5 feet in depth, and at the bottom was found some bones, evidently those of a grown up person. A section of an iron utensil and pieces of ribbon, which had evidently been used to tie up the bones, and rolls of rags or leaves, which had probably been placed in the coffin, were also among the curious things brought to light. The relics were handed over to commissioner Dixey by Mr. Jacob Jacoby, the superintendent of the work of improvement, and they were deposited in Mr. Dixey's office, Fifth and Walnut streets.

Brown's Patent Reciprocating Rolling Mills.

This rolling mill is intended to obviate the disadvantages of reversing rolls, while retaining all the advantages possessed by that system. There are two pairs of rolls mounted in the same manner as ordinary rolls, but both pairs are placed in the same pair of standards, the one pair of rolls exactly in front of the other pair; the rolls revolve in opposite directions. The pile billet or bar, when brought to the rolls, passes through a groove in the first pair of rolls, direct into the opposite groove in the second pair of rolls; the first groove is cut away and made larger in the section than the bar which passes through it, and therefore does not act upon it. The second groove seizes the billet, bloom or bar, and operates upon it. After passing through both pairs of rolls, it is returned in the same manner as before, and this, through a groove which does not act upon the bar into a groove which does act upon it. In this manner, one pair of rolls draws down the iron in going one direction, and the other pair of rolls draws down the iron in returning in the opposite direction. The cramps, side guards, &c., are arranged in the same manner as an ordinary mill; two bars may be under operation at one and the same time, the one going and the other returning. The rolls act perfectly independent of each other, therefore the roller may raise or lower one pair of rolls without in the least interfering with the other. The bar is always upon one line, and works to and fro upon rollers, either driven upon friction rollers or rollers driven by gearing. Rails, strips, and other sections of steel and iron, may be rolled upon this plan at any speed—a great advantage when the iron is red-short, as thin flanged rails may be finished white hot. There requires no reverse gearing, or any lifting or lowering, as is the case in three high rolls.

This mill has many advantages in rolling the puddled blooms from Danks' rotary puddling furnace, as the bars require neither lifting nor turning over, a great advantage in broad bars. At the Britannia Iron Works, England, a rail mill turned out during a fortnight ending June 3, no less than 2404 tons of rails, working 10 shifts each week, and having 14 first heating furnaces. The statement is as follows:

115 tons of 35 lbs.	per yard rails	in 48 feet	length.		
120 "	40 "	"		48	"
130 "	48 "	"		48	"

The rail mill is capable of turning out 150 tons per shift of 74 lb. rails. Another mill is reported as turning out 135 tons of 45 lb. rails per turn, at the rate of 2700 tons per fortnight. The patentee is Mr. Wm. Brown, of Smethwic, England.

Stack No. 1, Stewart furnaces, was put in operation on Tuesday, the 20th ult., and is averaging 24 tons of No. 1 foundry iron per day. The management of these furnaces is in the hands of Mr. Thomas Blunt, and with Mr. Samuel McClure as foundryman, and the office in the charge of Mr. Frank Morrison, everything appears to be moving off like clock-work so systematically is everything arranged. With such an efficient corps, the Stewart furnaces can be relied upon at all times to produce a first-class article. We hope to chronicle, at no distant time, a sufficient demand for their product, as will make it profitable for them to blow in stack No. 2.—*Sharon, Pa., Herald.*

The Catasauqua Rolling Mill will reduce wages from ten to twenty per cent. in about two weeks.

HENRY DISSTON & SONS,

Keystone Saw, Tool, Steel and File Works.

Front and Laurel Streets, Philadelphia.

Branch Works, Tacony, Philadelphia. **Branch House, Randolph & Market Streets, Chicago, Ill.**

Our Celebrated CROSS-CUT AND WOOD SAWS.

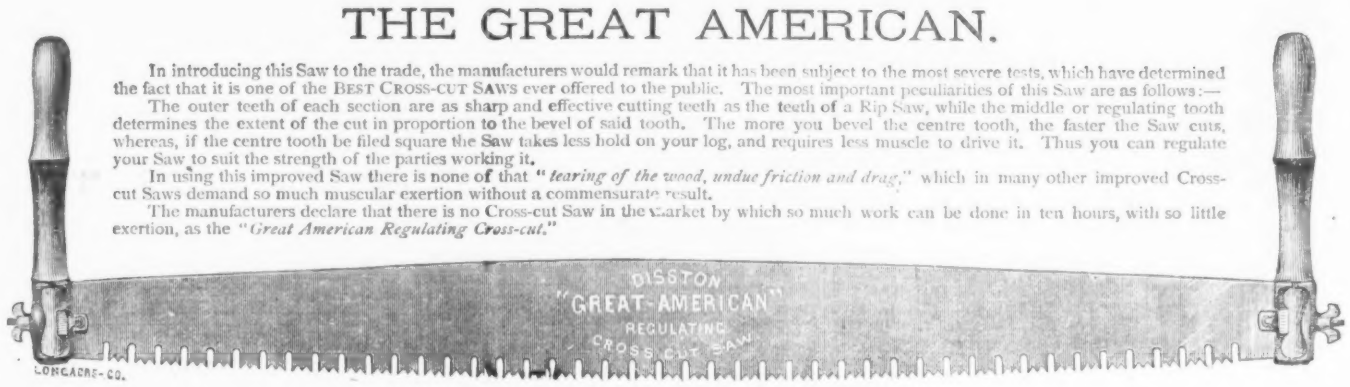
THE GREAT AMERICAN.

In introducing this Saw to the trade, the manufacturers would remark that it has been subject to the most severe tests, which have determined the fact that it is one of the BEST CROSS-CUT SAWS ever offered to the public. The most important peculiarities of this Saw are as follows:—

The outer teeth of each section are as sharp and effective cutting teeth as the teeth of a Rip Saw, while the middle or regulating tooth determines the extent of the cut in proportion to the bevel of said tooth. The more you bevel the centre tooth, the faster the Saw cuts, whereas, if the centre tooth be filed square the Saw takes less hold on your log, and requires less muscle to drive it. Thus you can regulate your Saw to suit the strength of the parties working it.

In using this improved Saw there is none of that "*tearing of the wood, undue friction and drag*," which in many other improved Cross-cut Saws demand so much muscular exertion without a commensurate result.

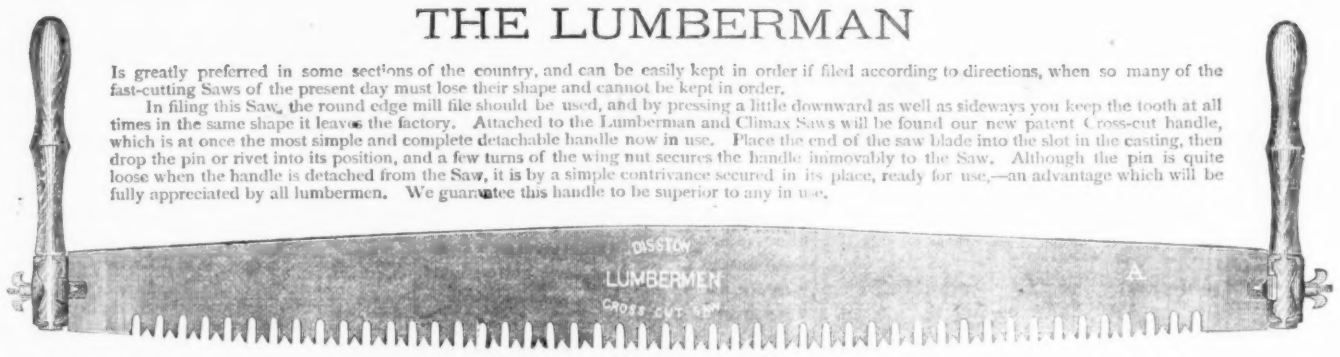
The manufacturers declare that there is no Cross-cut Saw in the market by which so much work can be done in ten hours, with so little exertion, as the "*Great American Regulating Cross-cut.*"



THE LUMBERMAN

Is greatly preferred in some sections of the country, and can be easily kept in order if filed according to directions, when so many of the fast-cutting Saws of the present day must lose their shape and cannot be kept in order.

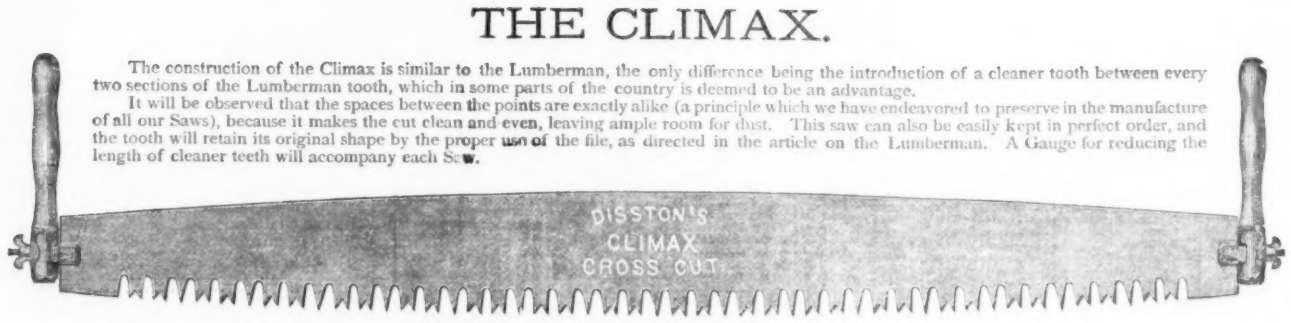
In filing this Saw, the round edge mill file should be used, and by pressing a little downward as well as sideways you keep the tooth at all times in the same shape it leaves the factory. Attached to the Lumberman and Climax Saws will be found our new patent Cross-cut handle, which is at once the most simple and complete detachable handle now in use. Place the end of the saw blade into the slot in the casting, then drop the pin or rivet into its position, and a few turns of the wing nut secures the handle immovably to the Saw. Although the pin is quite loose when the handle is detached from the Saw, it is by a simple contrivance secured in its place, ready for use,—an advantage which will be fully appreciated by all lumbermen. We guarantee this handle to be superior to any in use.



THE CLIMAX.

The construction of the Climax is similar to the Lumberman, the only difference being the introduction of a cleaner tooth between every two sections of the Lumberman tooth, which in some parts of the country is deemed to be an advantage.

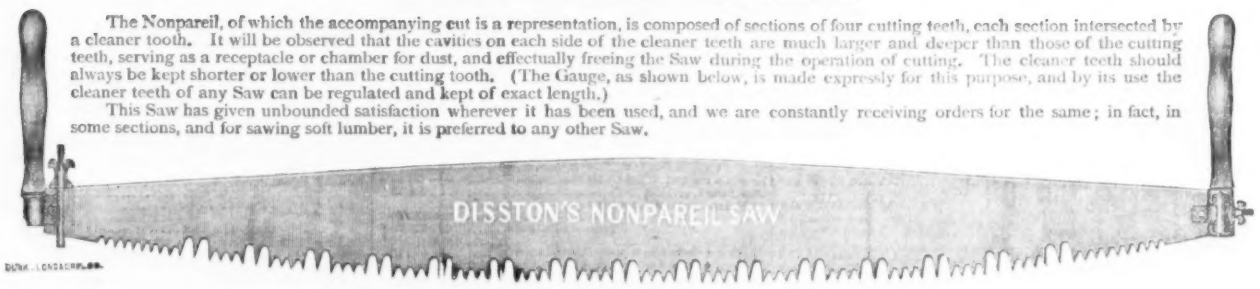
It will be observed that the spaces between the points are exactly alike (a principle which we have endeavored to preserve in the manufacture of all our Saws), because it makes the cut clean and even, leaving ample room for dust. This saw can also be easily kept in perfect order, and the tooth will retain its original shape by the proper use of the file, as directed in the article on the Lumberman. A Gauge for reducing the length of cleaner teeth will accompany each Saw.



THE NONPAREIL.

The Nonpareil, of which the accompanying cut is a representation, is composed of sections of four cutting teeth, each section intersected by a cleaner tooth. It will be observed that the cavities on each side of the cleaner teeth are much larger and deeper than those of the cutting teeth, serving as a receptacle or chamber for dust, and effectually freeing the Saw during the operation of cutting. The cleaner teeth should always be kept shorter or lower than the cutting tooth. (The Gauge, as shown below, is made expressly for this purpose, and by its use the cleaner teeth of any Saw can be regulated and kept of exact length.)

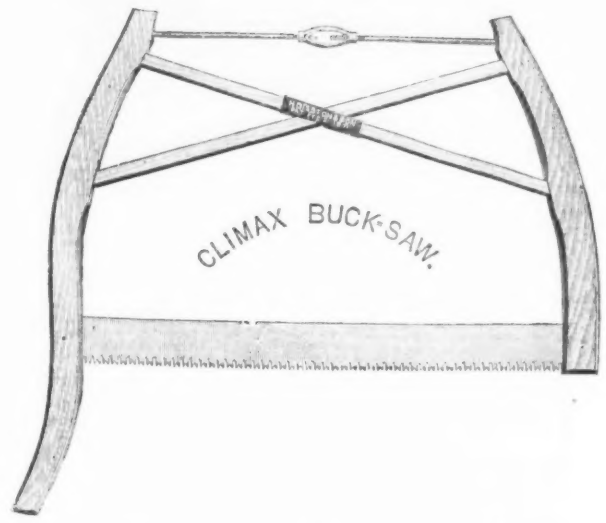
This Saw has given unbounded satisfaction wherever it has been used, and we are constantly receiving orders for the same; in fact, in some sections, and for sawing soft lumber, it is preferred to any other Saw.

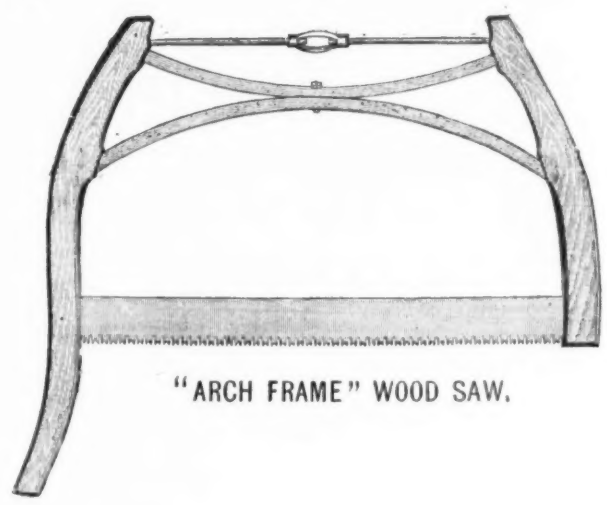


GAUGE FOR REGULATING CLEANING-TEETH.

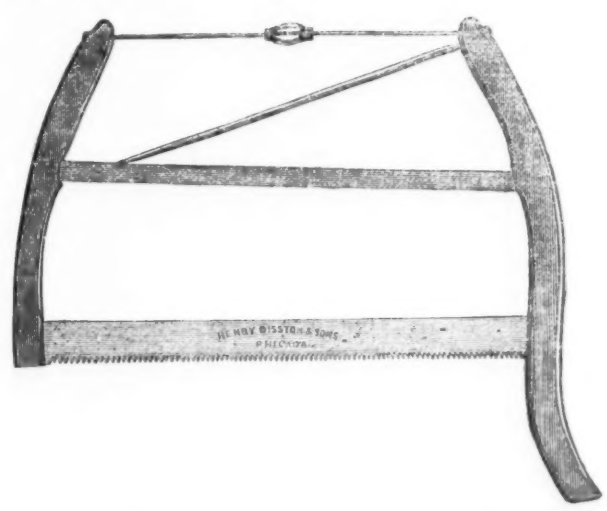
The Cleaning-Teeth of all Saws should be somewhat shorter than the Cutting-Teeth, and, although shortened, they should be of uniform length throughout. The inner edge of the Gauge rests on the points of the Cutting-Teeth, the Cleaning-Teeth projecting through the opening in center of Gauge. Reduce the projecting points by means of a File, until arrested by the edges of the Gauge, which is made of hardened steel. Thus Tooth after Tooth can be rapidly and correctly reduced to an even length by any unskilled operator.

Showing the Gauge in Position for Filing the Cleaner-Tooth.





"ARCH FRAME" WOOD SAW.



DISSTON'S WOOD SAW FRAME.

New York Wholesale Prices, August 18, 1875.

HARDWARE.

Anvils.
Solid Cast Steel ... ℣ ℔ 14c
Wright's ... ℣ ℔ gold 11c; over 250 ℔s 11½c, gold
Armitage's Mouse Hole ... gold 11c
Wilkinson's ... ℣ ℔ gold 11c
Eagle Anvils ... ℣ ℔ 8c
Apple Parers.
Domestic, Turn Table, Lightning, Hudson's, Reading, Union ... } $7.75 ℣ doz
Skeleton Paring, Coring and Slicing ... $8 00 ℣ doz net
Bay State, Paring, Coring and Slicing ... $15 00 dis 10 %
Climax Slicer ... 8 00
Augers and Bits.
Douglass, Ives, Beecher (French, Swift & Co), Griswold, Challenge ... } 1st quality ... dis 40&10 %
Nobles Mfg. Co ... dis 40 @ 40&5 %
Cook's ... dis 40&10&10 %
Diamond Hardware Co ... dis 25&10&10 %
Snell Mfg. Co ... dis 22½ @ 25 %
Jennings' Bits ... dis 10 %
Lewis' Single Twist Bits ... dis 30 %
Andrews' Bits ... dis 25 %
Griswold's Patent Bits ... dis 20 %
Expansive Bits, Clark's ... small, $18; large, $26—dis 15 %
" " Ives' ... $20 @ $30—dis 30 %
" " Blake's ... $30—dis 40 %
Hollow Augers, Douglass', Ives', French, Swift & Co ... } dis 40 %
" " Bonney's Adjustable ℣ doz $48—dis 25 %
" " Stearns' ... ℣ doz $48—dis 25 %
" " Ives' Expansive ... each $4·50—dis 40 %
" " Universal Expansive, each $4·50—dis 10 %
Gimlet Bits—Screw, $7·50; no screw, $9 ... dis 20&10 %
Double Cut Gimlet Bits, Shepardson's ... dis 20 %
" " Hartwell's ... dis 50 %
" " Douglass' ... dis 20&10 %
" " Ives' ... dis 30 %
Morse's Bit Stock Drills ... dis 20 %
L'Hommedieu's Ship Augers ... dis 15 @ 20 %
Watrous Ship Augers ... dis 15 %
Vaughan's Post Hole—
6 in. $23 60; 7, 8 and 9 in $25 per doz ... dis 20 %
Awls, Brad Sets, &c.
Awls, Sewing ... per gross $1·20—dis 10 %
" Shouldered Peg ... per gross 2·25—dis 10 %
" Patent Peg ... per gross ·60—dis 10 %
" Shouldered Brad ... per gross 2·25—dis 10 %
Brad Sets, Aiken's ... per doz $14·40—dis 25&10 %
" Nos. 42 and 43 ... dis 40&10 %
" Clark's ... dis 30&10 %
" Stanley's Excelsior ... $13 50—dis 25&10 %
Axes.
Brook's ... per doz $12 00 @ 14 00 net
Blood's ... per doz $15 00 @ 16 50—dis 20 %
Hunt's ... ℣ doz $12 50 @ 14 00
Collins' ... ℣ doz 11 00 @ 15 50 net @ dis 5 %
H. Clark's (J. C. W. & Co.) bron'd or red. ℣ doz $10 00 net
Hurd's ... ℣ doz 10 50 @ 12 50
Simmons' ... ℣ doz 11 00 @ 11 50
Morris' ... ℣ doz 12 50 @ 13 50
Red Jacket ... ℣ doz 12 00 @ 12 50
Mann's ... ℣ doz 11 50 @ 13 00
" Double Bitted ... ℣ doz 21 50 @ 22 00
Underhill's ... ℣ doz 12 00 @ 13 00
" Crown ... ℣ doz 12 50 @ 13 50
John Leverett's ... ℣ doz 12 50 @ 15 50
Ten Eyck ... ℣ doz $10 00 @ 12 50 net
M. H. Jones & Co ... ℣ doz 10 50 @ 11 50 net
Nobles Mfg. Co ... per doz $10 50, net
Elephant ... per doz $10 50 net
Axle Grease.—Frazer's ... ℣ ℔ 6c.
Balances ... dis 35 %
Bands.—Plated ... new list dis 50&5 %
Iron Rim ... new list dis 25&5 %
Brass (Plated list) ... new list dis 50, 10&5 %
Oroide ... new list dis 50&5 %
Bells.
Hand, Light Brass ... dis 70&10 %
" Extra Heavy ... dis 40&10 %
" White Metal ... dis 50&10 %
" Silver Chime ... dis 15&10 %
" Swiss ... dis 25 %
" Globe (Cone's Patent) ... dis 15&10 %
Gong Abbe's ... dis 15&10 %
" Yankee ... dis 30&10 %
" Barton's ... dis 35 %
Crank, Taylor's ... dis 25 %
" Brook's ... dis 50 %
" Cone's ... dis 10 %
" Connel's ... dis 50&10 %
Lever, Sargent's ... dis 60&10&10 %
" Taylor's ... dis 25 %
" Hart, Bliven & Mead Mfg. Co ... dis 50&10 %
Pull, " " " " ... dis 50&10 %
" Brook's ... dis 50 %
" Western ... dis 25 %
Call ... dis 15 %
Cow—Common Wrought ... dis 20&10 %
" Western ... dis 20&10 %
" " Sargent's ... dis 50&10&10 %
" Kentucky "Star" ... dis 20&10 %
" " Sargent's ... dis 50&10&10 %
" Dodge's Genuine Kentucky, new list—
Nos. 0 1 1½ 2 3 4 5 6 Hog.
$12·00 10·00 9·00 8·00 6·00 5·00 3·50 2·50 5·00—dis 45 %
" Yaw's Genuine ... dis 30 %
" Texas ... dis 35 %
Bellows.
Blacksmiths', Common ... dis 15 %
" Extra and Pittsburgh Pattern ... List net
Moulders' ... dis 20 %
Hand Bellows ... dis 10 %
Blind Adjusters.—Domestic ... ℣ doz $3—dis 20 %
Blind Fasteners.
Mackrell's ... dis 30 %
Van Sand's, No. 2000, $14·00; No. 3705, $10·50 ... net
Washburn's Patent ... ℣ gross $14 00 net
Merriman's ... new list net
Blind Staples.
Boardman's Patent, ⅜ in. and larger ... ℣ ℔ 37 c
" ¼ in ... " 42 c
Blocks.
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list ... dis 30 %
Burr's ... dis 10 %
Stanley Rule and Level Co ... dis 25&10 %
Bolts.
Cast Iron Barrel, Shutter, &c ... dis 60&10 %
Cast Iron Chain ... dis 60&10&10 %
Wrought Iron Barrel ... dis 50, 10&10 %
" " Square ... dis 50, 10&10 %
" " Shutter ... dis 60&10 %
Wrought Iron Flush, Stanley's ... dis 15&10 %
" " " Sargent's ... dis 50&10&10 %
Carriage and Tire, Common ... dis 75 %
" " " Norway Iron ... dis 50&10 %
" " " R. B. & W ... (old list) dis 60 %
" " " Philadelphia, Star ... dis 55 %
" " " " Eagle ... dis 55 %
" " " Shelton's ... (old list) dis 60 %
Union Nut Company, old list ... dis 60&10 %
Stove ... dis 25 %
" R. B. & W ... dis 25 %
" Shelton's Shaved Head ... dis 25 %
Borax ... 15c. ℣ ℔
Boring Machines.
Kellogg's ... dis 15 %
Snell Mfg. Co., Rice's Patent ... dis 20 %
" " Regular ... dis 20 %
Douglas Mfg. Co ... No. 5, $3·25; with Augers, $5·00 net
No. 2, 4·00 " " 6 00 net
Parr's ... dis 30&10 %
Phillips' Angular, complete with Augers ... each $7 25
Mortising Machines, $20·00 each ... dis 20 %
Bow Pins.
Union Nut Co ... new list dis 50&10&5 %
Hotchkiss' ... dis 50 @ 55 %
Humason, Beckley & Co.'s ... dis 50&10&5 %
Sargent & Co.'s ... dis 50&10&10 %
Braces.
Barber's Patent ... dis 40&5 %
Q. S. Backus ... dis 40&10 %
Wilson Mfg. Co ... dis 10 %
Spofford's Patent ... dis 50 %
Noble's Patent ... dis 40&5 %
Ives Novelty ... dis 40&7½&10 %
" Hamden ... dis 15&10 %
Common Ball (American) ... dis 15&10 %
Brackets.—Shelf ... dis 60&10 @ 65&10 %
Bright Wire Goods ... dis 65&10&10 %
Butt Rings.—Union Nut Co., new list, dis 50&10&5 %
Sargent's ... dis 60&10 %
Hotchkiss' ... 2½ in., $2·25 net
Bung Hole Borers.
Common and Ring ... dis 20&10 %
Ives' Tap Borers ... dis 10&10 @ 25 %
Enterprise Mfg. Co ... dis 20 %
Butchers' Cleavers.
Humason & Beckley Mfg. Co ... dis 20&10 %
Bradley's ... dis 25 %
Beatty's ... dis 20 %
2 3 4 5 6 7 8 8
$19·00 $21·00 $24·00 $27·00 $30·00 $33·50 $36·50 $40·50
Hart Mfg. Co ... dis 45&10 %
0 1 2 3 4 5 6
$25·25 $29·75 $34·25 $38·75 $43·25 $48·50 $54·00
Butts.
Wrought Brass ... dis 30 %
Cast Brass ... dis 20 %
Common Cast, not Drilled.
Fast Joint, Narrow ... New list July ... dis 30&10 %
" Broad ... " dis 40&10 %
" Jap'd ... " dis 35&10 %
Loose Joint, Narrow and Broad ... " dis 50&10 %
" " Jap'd ... " dis 45&10 %
Parliament Butts & Mayer's Hinges ... " dis 40&10 %
Loose Pin ... " dis 45&10 %
" Japanned ... " dis 35&10 %
" " Plated Tips ... " dis 50&10 %
Drilled and Wired.
Fast Joint, Narrow ... New list July 1, dis 25&10 %
" Broad ... dis 35&10 %
" " Jap'd, with and without Acorns ... " dis 30&10 %
Loose Joint ... " dis 45&10 %
" Jap'd with and without Acorns ... " dis 45&10 %
Parliament and Mayer's Hinges ... " dis 35&10 %
Loose Pin ... " dis 40&10 %
" Japanned ... " dis 50&10 %
" " Plated Tips ... " dis 45&10 %
Union Mfg. Co., Figured Enameled L. J ... dis 55&10 %
" " Nickel Pl. L. J. Capped Iron and Bronze ... dis 33⅓&10 %
" " Boston Finish, Plain, without Acorns ... dis 80&5 %
" " Boston Fin. with Iron Acorn ... dis 75&5 %
" " " " Silvered " ... dis 65&5 %
Wrought Iron.
Fast Joint, Narrow, Lt. and Regular ... dis 30 %
" Broad ... dis 35 %
Loose Joint, Narrow and Broad ... dis 35 %
Table Butts, Back Flaps, &c ... dis 30 %
Inside Blind, Regular ... dis 30 %
" " Light ... dis 40 %
Loose Pin, Wrt ... dis 35 %
Am. Spiral Spring Butt Co., list May 1st ... dis 25 %
Union Spring ... dis 20 %
Blind Butts, Parker ... dis 60&10 %
" Palmer ... dis 40 %
" Seymour ... dis 55&10 %
" Shepard ... dis 60 @ 60&10 %
" Lull & Porter ... dis 60 %
" Nicholson ... dis 45&10 %
" Huffer ... dis 33⅓&10 %
" Garretson, No. 1 ... dis 60 @ 60&10 %
" Clark's, Nos. 1, 3 and 5 ... dis 60 @ 60&10 %
" Clark's No. 2 ... dis 60&10 @ 65&10 %
" " Nos. 2, 4, 4½, 6, 8, 10 ... dis 40 %
Caps—Percussion, per 1000.
G. D ... 37 @ 40c
Ely's E. B ... 1-4s, 58c.; 1-10s, 70c. gold
" Double Waterproof, 1-4s, $1·45; 1-10s, $1·52½c., gold
Colt's ... 1-10s 80c gold
Carpet Sweepers.
Union ... each $2 75 net
Welcome ... each 2 75 net
Cartridges.—Metallic ... dis 50&10 %
Cards.—Horse and Curry ... dis 30&10 %
Cotton ... dis 10&10 %
Wool ... dis 15&10 %
Carpet Stretchers.
P. S. & W ... per doz $2 00; dis 40&5 %
Sargent's ... per doz $2·88—dis 50&10&10 %
Casters.
Bed ... dis 30&10 @ 40 %
Plate and Shallow Socket ... dis 40&10 %
Deep Socket ... dis 33⅓ %
Cattle Leaders ... new list dis 60&10 %
Chain
English Coil ... net gold
℣ ℔ ... 11½ 8⅝ 7⅜ 7⅛ 7⅛ 7c
3-16 ¼ 5-16 ⅜ 7-16 ½
Trace, 6½-10-2 ... by the cask, ℣ pair, gold 55c
Trace, 7-10-2 ... by the cask, ℣ pair gold 62c
German Halter Chain ... dis 20 % gold
German Coil ... dis 20 % gold
Galvanized Pump Chain ... ℣ ℔ 13c
Jack Chain, Iron ... dis 50&10 %
" Brass ... dis 40&10 %
Chalk.
White ... ℣ gross, 57c net
Red ... ℣ gross, 90c net
Blue ... ℣ gross, $1·00 net
White Crayons ... ℣ gross, 16½c net
Chisels.
Socket Framing, Douglass, Extra ... dis 60&10&10 %
" " Crossman ... dis 50&15&10 %
" " Buck Bros ... equivalent to dis 50&15 %
" " Hart Mfg. Co ... dis 60&10 %
" " Merrill ... dis 60&10 %
" Firmers, Douglass, Extra ... dis 60&10 %
" " Crossman ... dis 50&10&10 %
" " Buck Bros ... equivalent to dis 50&15 %
" " Hart Mfg. Co ... dis 60&5 %
" " Merrill ... dis 60 %
Socket Corner ... dis 60&10 %
Tanged Firmers ... dis 40&10 @ 50 %
" " Butcher's ... $5·50 to £ gold
" " Newbould's ... $5·50 to £ gold
" " Spear & Jackson's ... $5·50 to £ gold
" " Buck Bros (Shank) ... $5·5 to £ gold
Clamps.
Cabinet ... dis 60&10 %
Gray's ... dis 20 %
Lambert's ... dis 20 %
Providence Tool Co ... dis 10 %
Clips, Axle.
Norway or Best ... dis 40 %
Superior ... dis 50 %
"Star," Superior Philadelphia ... dis 45&5 %
Coal Shovels.
Edgar's Pat. "Gem," Short and Long H'dled ... dis 15 %
Iron Handled ... ℣ doz, $ 85 @ 1 25
Wooden Handled ... ℣ doz, 1 00 @ 2 00
Coal Hods.—Smith, Burns & Co ... dis 15 @ 25 %
14 15 16 17 18 inch.
Japanned ... $6·00 6·35 6·75 7·50 8·00 per doz.
Galvanized ... 9·50 10·00 10·75 11·50 12·50
Morning Glory Funnel Hods—
No. 15 16 17
Japanned ... $9·00 10·50 12·00 per doz
Galvanized ... 13·00 14·50 16·00 "
Sidney Shepard & Co.'s new list ... dis 10 %
Cockeyes ... 1¼ in., 28c.; 1½ in., 33c.; 1¾ in., 37c. net
Cocks.
Brass Racking ... dis 33⅓ %
Lock and Globe ... dis 33⅓ %
Lever Bibbs ... dis 33⅓ %
Ale and Beer ... dis 20&10 @ 25&10 %
Coffee Mills.
Board and Box ... dis 15 @ 20 %
Brighton ... dis 20 %
Increase Wilson's ... dis 20 %
Selsor's Pat ... $9·50, $10·50—dis 25 %
American (Enterprise Mfg. Co.) ... dis 20 %
French Steel ... dis 15 %
The Swift ... dis 20 %
Compasses and Dividers.
Bemis & Call Co.'s ... dis 35&10 %
Cook's ... dis 15 %
Excelsior ... dis 30 %
Peck Stow & Wilcox ... dis 25 %
Miller's Patent ... dis 25 %
Coopers' Tools.
Bradley's ... dis 15 @ 20 %
Chas. E. Little ... dis 20 @ 25 %
Swan & Brombacher ... dis 15 @ 20 %
Corkscrews ... dis 25 %
Corn Knives and Cutters.
Bradley's ... dis 10 %
Crow Bars.
Cast Steel ... ℣ ℔ 11c. net
Iron, steel points ... ℣ ℔ 5c
Crucibles.—Gautier & Co ... ℣ No. 5½c
Curling Irons, &c.
½, ⅝, ¾ in., $1·80, $2·00, $2·40 ... dis 10 %
Curling Tongs ... ℣ doz $6 50—dis 15 %
Pinching Irons ... ℣ doz 7 50—dis 20 %
Curry Combs.
Hotchkiss' & Kellogg's, Iron & Brass, old list ... dis 40 %
Fitch's (List of No. 240, $1) ... dis 20&10 %
Rubber ... ℣ doz, $9·00—dis 15 %
Wood Tooth (Fuller Bros.) ... per doz $2·25 net
Curtain Pins.—Silvered Glass ... old list dis 52½ %
Cutlery.
American Table { Meriden } New list Jan. '75, dis 25 %
American Pocket { Cutlery Co } ... dis 25 %
Am. Pocket—Humason & Beckley Mfg. Co ... dis 20&10 %
Am. Miller Bro.'s Cutlery Co ... dis 25 %
Naugatuck Cutlery Co ... dis 25 %
Dippers.
Britannia ... per doz 7·50—dis 30 %; by bbl. dis 33⅓ %
Cocoa, Plain ... per doz $3·25—dis 20 %
" Rimmed ... per doz 3·75—dis 20 %
Dog Collars.
Embossed Gilt ... dis 20 %
Leather ... dis 20 %
Brass ... dis 25 %
Door Springs.
Gray's ... $7·50 ℣ doz—dis 50&10 %
Torrey's Patent ... $7·50 ℣ doz—dis 60 %
Johnson's ... per doz $3 00 @ 4 00
Palmer's Japanned No. 6 ... ℣ doz $5·00 }
" Coppered " ... " 6·00 } dis 20 %
" Silvered " ... " 8·00 }
Challenge.—
Japanned ... No. 9, per doz $4·00 }
No. 7, " 5·00 } ... dis 40 %
No. 6, " 6·00 }
Gem.—No. 1 large, Japanned ... per doz $4·00 }
No. 2 medium ... per doz 3·50 } dis 10 %
No. 3 small ... per doz 3·00 }
Barker's Concealed ... dis 12½ %
Drawing Knives.
Crossman's No. 1 ... dis 50&15&10 %
Douglass, Extra ... dis 60&10&10 %
Hart Mfg. Co., No. 1 ... dis 60 %
Merrill ... dis 60&10 %
Nobles Mfg. Co ... dis 15 %
Bradley's ... dis 25 %
Adjustable Handle ... dis 15 %
Drills and Drill Stocks.
Blacksmiths' ... each $2 60 net
" Self-Feeding ... each $8 00 net
Breast, P. S. & W ... dis 45 %
" Miller's Falls ... dis 25 %
" Aiken's ... dis 40 %
" Hotchkiss' ... dis 10 %
" Wilson's ... dis 10 %
Ratchet, Merrill's ... dis 20 %
" Ingersoll's ... dis 35 %
" Whitney's ... dis 20 %
" Weston's ... dis 20 %
" Moore's Triple Action ... dis 20 @ 25 %
Wilson's Drill Stocks ... dis 10 %
Automatic Boring Tools ... each $2·75—dis 20 %
Drill Chucks.—The Danbury ... each 10·00, dis 20 @ 25 %
Beach Patent (Morse) ... dis 15 %
Egg Beaters.
Monroe's ... 8 in. 10 in.
Per doz $8·00 9·00 ... dis 10 %
Dover ... ℣ doz $6·00—dis 10 %
National ... ℣ doz $4·50—dis 20 %
Peerless ... ℣ doz $5·00—net
Emery.
Genuine Chester—Regular Nos ... ℣ ℔ 6c } dis 10 %
" Flour and FF ... ℣ ℔ 4c }
Washington Mills—Regular Nos ... ℣ ℔ 8c
" Flour ... ℣ ℔ 5c
Enameled and Tinned Ware.
Kettles ... dis 30 @ 40 %
Sauce Pans ... dis 25 %
Glue Kettles ... dis 20 @ 25 %
Tinned Saucepans ... dis 25 %
Escutcheons.
Door Lock ... Same discounts as Door Locks
Brass Thread ... dis 60&10 %
Wood ... dis 25 %
Faucets.
Fenn's ... dis 50 %
" Cork Stops ... dis 40 %
Star ... dis 55&10 %
Frary's Patent Petroleum ... dis 15&10 %
Taylor's Pattern " ... dis 20&10 %
Wood and Metallic ... dis 40 %
Wood, Cork Lined ... dis 60&10 %
Enterprise Mfg. Co., Self-Measuring ... dis 20 %
Felloe Plates ... ℣ ℔ 15c; dis 25 %
Files.
American File Co ... $5 00 to £ currency—dis 15 @ 20 %
Arcade File Works ... $5·00 to £ currency
Auburn File Works ... $5 00 to £ currency
Nicholson ... new list, Jan. 1, 1875, net
Hartford File Co ... $5 50 to £ currency—dis 10 %
L. B. Heller & Co ... $5 00 to £ currency
Heller & Bros ... $5 00 to £ currency
"Western" ... 5 00 to £ net
Wheeler, Clemson & Co ... $5 00 to £ currency
Rothery's ... $5 to £ currency
J. & Riley Carr ... 5 25 to £ gold
" " Horse Rasps ... 5 50 to £ gold
Stubs' ... 8 50 @ 9 00 to £ gold
Butcher's ... 5 25 to £ gold
Walter Spencer & Co.'s "Diamond" ... 5 00 to £ gold
Spear & Jackson's ... 5 00 to £ gold
Jowitt's ... 5 00 to £ gold
Newbould's ... 5 25 to £ gold
W. K. & C. Peace's "Imperial" ... 5 25 to £ gold
R. Ibbotson ... 5 00 to £ gold
Turton Bros. & Matthews ... $5 50 to £ currency
Ashworth's (Van Wart & McCoy) $5 00 to £ cur. dis 10 %
Fisher's ... 4 75 to £ gold
Goodlad's ... 4 00 to £ gold
Moss & Gamble ... 5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 5 00 to £ gold
" " Horse Rasps ... 5 25 to £ gold
"Philo Sheffield," P. T. Co ... 5 00 to £ gold
Limet & Co. (French) ... 5 00 to £ gold
Fluting Machines.
Mrs. Coles' Pony, 4 in., $4·75; 5 in., $5; 6 in., 5·50; 7 in., $6
Knox, with 4-inch Rolls ... 3 80 each net
" " 6 " ... 4 25 each net
" " 8 " ... 6 75 each net
O. K ... 6 50 each net
Peerless, 4-inch Rolls ... 4 00 each net
" 5 " " ... 4 75 each net
Excelsior, No. 1 ... 4 75 each net
" No. 2 ... 6 50 each net
Diamond ... 7 50 each net
Champion, 6 inch rolls ... 6 00 each net
" 4 inch rolls ... 5 00 each net
Climax 7-inch Rolls ... 8 00 each net
" 4½ " ... 6 50 each net
Empire ... 4 00 each net
Eureka, No. 1, 7-inch Roll ... 8 00 each net
" No. 2, 5-inch Roll ... 6 00 each net
K. F. M., 4½-inch Roll ... 5 50 each dis 15 %
" 6-inch Roll ... 6 00 each dis 15 %
Myers' Fashion Fluter, 4½-inch Rolls ... 2 75 each net
" Convex Brass Fluter, Sad Iron attachment ... $1·75
Domestic Fluter ... $1·50 each net
Fairy, Self-Heater ... 00 each net
Geneva Hand Fluter ... $15 00 per doz net
Fluting Scissors ... dis 25&10 %
Forges.
"Empire" (W. P. Kellogg & Co.) ... dis 20 %
Forks.
Hay, Manure & Spading ... dis 33⅓ %
Plated A 1 ... dis 50 %
Fry Pans.
Burnished, P. S. & W., new list ... dis 45 %
℣ doz ... $3·00 3·75 4·25 4·75 5·25 6·00 7·00 8·00 9·00
No. ... 0 1 2 3 4 5 6 7 8
Smith, Burns & Co., "Excelsior" Polished ... dis 35 %
℣ doz ... $3·70 4·00 4·70 5·30 6·00 7·00 8·00 9·00
No. ... 1 2 3 5 6 7 8
Gas Stoves.
Tiff & Howard ... dis 20 %
Gauges.
Marking ... dis 45&10 %
Wire ... dis 10 %
" Smith's Patent ... per doz $18·00, dis 40 %
Gimlets.
Nail and Spike ... dis 25&10 %
Double Cut, Shepardson's ... dis 20 %
" " Ives' ... dis 25 %
" " Douglass' ... dis 20&10 %
Grind Stone Fixtures
Sargent's Patent ... dis 65&10 %
Reading Hardware Co ... dis 65&10 %
J. F. Green & Bro ... dis 20 %
Hart Mfg. Co.'s ... dis 60&5&10 %
Rick Bros ... dis 45&5 %
Hammers.
Emmet Hammer Co.'s Handled ... dis 25 %
" " Sledge & Stone ℣ ℔ 40c.; dis 40 %
Humason & Beckley Mfg. Co ... dis 16⅔&10 %
Maydole's ... dis 12 %
Cheney's ... net
Verree ... dis 5 %
Yerks & Plumb ... dis 12½ %
Magnetic Tack ... dis 25&10 %
Warner & Noble's ... dis 10 %
Hand Cuffs and Leg Irons.
Tower's Hand Cuffs, $4 00 per pair ... } dis 25 %
" Leg Irons $5 50 per pair ... }
Providence Tool Co.'s Hand Cuffs $15 per doz } dis 10 %
" " Leg Irons 25 " }
Handles.
Door or Thumb Latches—
Nos. 0 1 2 3 4
Per doz $ ·80 1·00 1·18 1·35 1·50—dis 60 %
Roggin's Latches ... 40c. @ 50c. net
Bronzed Iron Drop Latches ... per doz $1·30 net
Wrought Chest ... dis 60&10 %
Surface Chest ... dis 65&10&10 %
Flush Chest ... dis 60&10&10 %
Lifting ... dis 60&10 %
Coffin ... dis 50&10 @ 60&10 %
Saw and Plane ... dis 25&10 %
Hammer and Hatchet ... dis 10 %
Brad Awl ... per gross $3 50—dis 20&10 %
Hickory Firmer Chisel, ass'td " 5 25—dis 20&10 %
" " " large " 6 50—dis 20&10 %
Apple " " ass'td " 6 00—dis 20&10 %
" " " large " 7 50—dis 20&10 %
Socket " " ass'td " 3 50—dis 20&10 %
" Framing " " " 7 00—dis 20&10 %
File ... " " 4 00—dis 20&10 %
Auger ... " " 6 50—dis 20&10 %
" large " 8 00—dis 20&10 %
Patent Auger, Ives' ... dis 25&10 %
" " Douglass' ... per set $1 25—dis 10 %
" " Swan's ... per set $1 00—dis 10&10 %
Hangers.
Barn Door ... dis 65&10 %
"Anti-Friction" (Rider, Wooster & Co.) ... dis 30&5 %
Novelty ... dis 30 %
Harness Snaps.
Henshaw's ... dis 25&10 %
Judd's ... dis 40 %
Fitch's (Bristol) ... dis 30 %
Hotchkiss' ... dis 10 %
Andrews' ... dis 25 %
Sargent's ... dis 50&10 %
New York Wire ... dis 20&20 %
Hatchets.—Isaiah Blood ... dis 15 %
Shingling, Nos. 1 2 3 ... ℣ doz $7 25 8 00 8 75
Claw, " 1 2 3 ... ℣ doz 7 75 8 50 9 25
Lathing, " 1 2 3 ... ℣ doz 7 50 8 00 8 50
Hunt's ... dis 10 %
Shingling, Nos. 1 2 3 ... ℣ doz $7 25 8 00 8 75
Claw, " 1 2 3 ... ℣ doz 7 75 8 50 9 25
Lathing, " 1 2 3 ... ℣ doz 7 50 8 25 9 00
Hurd's ... dis 25 %
Shingling, Nos. 1 2 3 ... ℣ doz $8 00 8 50 9 00
Claw, " 1 2 3 ... ℣ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ℣ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s ... dis 25 %
Shingling, Nos. 1 2 3 ... ℣ doz $6 50 7 00 7 50
Claw, " 1 2 3 ... ℣ doz 7 25 7 75 8 25
Lathing, " 1 2 3 ... ℣ doz 6 50 7 00 7 50
Yerkes & Plumb ... dis 15 %
Shingling, Nos. 1 2 3 ... ℣ doz $7 00 7 50 8 00
Claw, " 1 2 3 ... ℣ doz 7 50 8 00 8 50
Lathing, " 1 2 3 ... ℣ doz 7 00 7 50 8 00
Simmon's ... dis 15 %
Shingling, Nos. 0 1 2 3 ... ℣ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3 ... ℣ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ℣ doz 8 00 8 50 9 00
Broad, " 1 2 3 ... ℣ doz 9 00 10 00 12 00
" " 4 5 6 ... ℣ doz 14 00 16 00 18 00
" " 7 8 ... ℣ doz 20 00 22 00
Elephant ... dis 25 %
Shingling, Nos. 1 2 3 ... ℣ doz $8 00 8 50 9 00
Claw, " 1 2 3 ... ℣ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ℣ doz 8 00 8 50 9 00
J. P. Verree & Co ... dis 5 %
Shingling, Nos. 1 2 3 ... ℣ doz $7 00 7 50 8 00
Claw, " 1 2 3 ... ℣ doz 7 50 8 00 8 50
Lathing, " 1 2 3 ... ℣ doz 7 00 7 50 8 00
Underhill's ... dis 10 %
Shingling, Nos. 1 2 3 ... ℣ doz 7 25 8 00 8 75
Claw, " 1 2 3 ... ℣ doz 7 75 8 50 9 25
Lathing, " 1 2 3 ... ℣ doz 12 00 11 00 13 00
M. H. Jones & Co ... dis 25 %
Shingling, Nos. 1 2 3 ... ℣ doz $8 00 8 50 9 00
Claw, " 1 2 3 ... ℣ doz 9 00 9 50 10 00
Lathing, " 1 2 3 ... ℣ doz 8 00 8 50 9 00
Hay Knives.—"Lightning" ... per doz $20·00 net
Hinges.
Gate, Western ... ℣ doz $6·25—dis 60&10 %
" N. E ... ℣ doz 11·25—dis 60&10&10 %
" N. Y. State ... ℣ doz 7·30—dis 60&10 %
Rolled Plate ... dis 65&10 %
" Raised ... dis 65&10 %
Wrought Strap and T ... dis 33⅓&10&5 %
Providence Plate. { 6 and 8 in. 11c ℣ ℔ / over 8 in. 9½c ℣ ℔ } ... dis 30 %
Screw Hook and Strap ... { 8, 10, 12 in. 6½c / 14 to 36 in. 5½c } ... net
Heavy Welded Hook ... { 8 to 12 in., 6½c / 14 in. & up, 6c } ... net
Screw Hook and Eye ... { ⅜ to 1 in., 8½c / ⅝ in. 9½c / ½ in. 11½c } ... net
Hoes.
Solid Shank, C. S ... ℣ doz $8 00—dis 35 %
Socket ... ℣ doz 9 00—dis 35 %
Riveted Eye ... ℣ doz 5 00—dis 35 %
Grub ... dis 25 %
Planters ... net @ dis 5 %
Scovill ... add 33⅓ %
Scovill Pattern ... net @ dis 5 %
Lane's C. S. Cresent, American Pattern ... list net
" " " Scovil Pattern ... add 10 %
Hooks.
Bird Cage ... dis 60&10 @ 70&10 %
Cotton ... dis 20 %
Belt ... dis 55 @ 60 %
Bench—Hotchkiss' $5 00 ℣ doz ... dis 10 %
" Weston's No. 1, $8·00; No. 2, $7·00 per doz net
" McGill's ... $3 00 per doz, dis 10 %
" Skinner's ... per doz $6·25, dis 30 %
Clothes Line, Harness, Wardrobe, Hat and Coat, Ceiling. { Hart's list ... dis 60&10&10 % / Sargent's list ... dis 60&5&10 % / Reading list ... dis 35&10 % }
Wrought Staples and Hooks and Staples ... dis 70&10 %
Wire Screw Hooks and Eyes ... dis 65&10&10 %
Grass ... dis 20 %
Whiffletree—Patent ... dis 35 %
Hooks and Eyes—Malleable Iron ... dis 60&10&10 %
" " Brass ... dis 60&10&10 %
Horse Nails.

Nos.		5	6	7	8	9	10
American Pressed	℣ ℔	22c	20c	20c	20c	20c	20c
Ausable	"	30c	27c	25c	24c	22c	22c
" P't'd & Pol'd	"	31c	28c	26c	25c	24c	23c
" " & Blued	"	32c	29c	27c	26c	25c	24c
Brundage	"	29c	26c	24c	23c	22c	21c
Buffalo Forged	"	31c	28c	26c	25c	24c	23c
Globe, P't'd & Pol'd	"	31c	28c	26c	25c	24c	23c
National, Pointed and Polished, Pat. Fin	"	28c	25c	23c	22c	21c	20c
National, Pointed and Polished, Ex. Fin	"	30c	27c	25c	24c	23c	22c
Perkins' Pointed and Polished	"	30c	27c	25c	24c	23c	21c
Perkins' Pointed and Blued	"	31c	28c	26c	25c	24c	22c
Putnam	"	32c	28c	26c	25c	24c	23c
Vulcan, P't'd & Blued	"	33c	30c	28c	27c	26c	25c

Star Brand, 16c.; Morgan ... 14c
Putnam ... 2000 lbs., dis 5 %
Ausable, Am. Pressed, Perkins, Globe, National and New London ... 1000 lbs., dis 5 %
Vulcan ... 1000 lbs., dis 7½ %
Vulcan and Brundage ... 500 lbs., dis 5 %
Horse Shoes.
Burden ... ℣ keg, $5·00
R. I. Horse Shoe Co., Perkins Pattern ... ℣ keg, 5·00
" " R. I. Pattern ... ℣ keg, 5·87½
Mule Shoes ... ℣ keg, 6·00
Perkins' Snow ... ℣ keg, 6·62½
Boston Rolling Mills Hand Made ... ℣ ℔ 8c
Kettles.
Brass ... ℣ ℔ 45c net
Enameled ... dis 30 @ 40 %
Knives.
Ames' Butcher Knives ... dis 20 %
" Shoe " ... dis 15 %
" Bread " ... ℣ doz $1·50—dis 15 %
Hay and Straw, "Wadsworth's" ... dis 20 %
Table and Pocket ... See Cutlery
Knobs.
Carriage (Jap'd 80 cents per gross) ... dis 60&10 %
Base—Common ... net
" Plush Tip ... dis 10 %
" Elastic End, No. 8 ... dis 30&10 %
Door, Mineral ... ℣ doz $2·25 }
" Por. Jap'd ... ℣ doz 3·00 } dis 40&5&2 %
" " Plated ... ℣ doz 7·00 }
" " Por ... ℣ doz 7·50 }
Furniture, Plain ... 75c gross inch, dis 10 %
Ladles.
Melting, Hart's ... dis 55&10 %
" Sargent's ... dis 50&10 %
" Reading ... dis 15&10 %
Lanterns.
Tubular ... No. 0, $11·00; No. 1, $14·00 net
Peerless ... No. 5, per doz $11·75—dis 10&10 %
Brady's Patent ... dis 10 & 10 %
Ætna ... dis 10 & 10 %
Yankee ... dis 10 & 10 %
De Beque ... dis 10 & 10 %
Lard Presses.
Draw Cut, 14 inch ... each $65 00—dis 20 %
Lemon Squeezers.
Porcelain Lined ... per doz $7 00, dis 15 %
Eureka, Tinned ... per doz, $10·00 dis 10 %
Dunlap's Improved ... per doz $6·00 net
Lines.
Linen Fish ... dis 20 %
Cotton Chalk ... dis 40 @ 45 %
Sil. Lake Chalk ... Nos. 0, 1, 2, 3, $6, 6·50, 7, 7·50, dis 20 %
Mason's ... dis 20 %
Locks and Latches.
Cabinet—Gaylord ... dis 25 %
" Eagle ... dis 22 %
Trunk ... dis 25 %
Langstroth & Crane, Round Key ... dis 40 %
" " Flat Key ... dis 33⅓ %
Barnes & Deitz ... dis 25 %
Continental ... dis 20 %
Shepardson's ... dis 20 %
American Lock Co ... dis 33⅓ %
Plate ... new list dis 40&2 %
Yale Lock Co ... dis 40 %
Sargent & Greenleaf ... dis 20 %
Trenton, Branford, Norwich, Russell & Erwin, Norwalk, Nashua, Mallory, Wheeler & Co., P. & F. Corbin, Parker & Whipple, Jacobus & Nimick Mfg. Co. } ... dis 40&5&2 %
Padlocks, Russell & Erwin, " Mallory, Wheeler & Co., " Wm. Wilcox & Co. } ... dis 40&5&2 %
" Romer's ... dis 15 %
" Vulcan Hardware Co ... dis 20 %
" New York Lock Co ... dis 20 %
" J. H. McWilliams ... dis 5 %
" Scandinavian Jail ... dis 10 @ 15 %
" Barnes & Deitz ... dis 25 %
" D. K. Miller Lock Co ... dis 30 %
" Penn Lock Works ... dis 20 %
Mallets.—Hickory and Lignumvitæ ... dis 20 %
Meat Cutters.
Dixon's (P. S. & W.) Nos. 1 2 3 4
℣ doz. $14 00 $17 00 $19 00 $30 00 dis 10 %
Miles Challenge ... Nos 1 2 3
℣ doz. $22·00 $30·00 $40 00—dis 20 %
Perry's (P. S. & W.) ... Nos. 200 300 400
℣ doz. $22·00 $27·00 $40·00—dis 10 %
Woodruff's (P. S. & W.) ... Nos. 100 150
℣ doz. $15·00 $18·00—dis 10 %
Hales' ... Nos. 11 12 13
℣ doz. $27·00 $33·00 $42·00—dis 35&2 %
Draw Cut ... Nos. 5 6 7
Each $56·00 $90·00 $250 00—dis 20 %
American ... dis 25 @ 25&5 %
No. ... 1 2 2½ 3 4 B 5
Each ... $6·00 $9·00 $12·00 $15·00 $30·00 $60·00 $75·00
Molasses Gates.
Stebbins' ... dis 65&10 %
" Tinned ends ... dis 40&10 %
Bush's ... dis 20 %
Lincoln's ... dis 50&10 %
Weed's ... dis 15 %
Mortars and Pestles.
Iron ... net
Nail Pullers.
Taft's ... per doz $24·00 net
Nails ... 10d., $3·25 @ $3·35 net
Nuts and Washers.
Nuts ... large, 6c; small, 8c off list.
Washers ... large, 8c; small, 10c off list.
Oilers.
Miller's Zinc, Brass and Copper ... dis 40 %
Sheet Metal Screw, Zinc ... dis 37½ %
" " " Brass ... dis 33⅓ %
Olmsted's ... dis 25&10 %
Broughton's ... dis 25&10 %
Malleable ... per doz $5 00 dis 10 %
Prior's Patent or "Paragon" ... dis 40 %
Ox Shoes.
Concave ... ℣ ℔ 13c net
Ox Balls ... dis 60&10 %
Pencils
Faber's Carpenters' ... net
" Round Gilt ... ℣ gross $6 00 net
Dixon's Lead ... ℣ gross $4·50 net
" Lumber ... ℣ gross 9·00 net
Picture Nails and Knobs.
Brass Head ... dis 60&10 %
Porcelain Head ... dis 55&10 %
Richards' Patent ... dis 40 @ 40&10 %
Judd's ... dis 60&10 %
Pinking Irons ... per doz $2 75—dis 65 %
Planes.
First Quality ... dis 35 %
Second Quality ... dis 50 %
Bailey's Patent Adjustable ... dis 25&10 %
Plane Irons, Butcher's ... $5 50 to £ gold—new list
" Buck Bros ... $5 50 to £ gold
" Bailey's Patent ... dis 25&10 %
" Auburn Tool Co.'s ... dis 25 %
" Greenfield Tool Co ... net list
" Middletown Tool Co ... net list
" Ohio Tool Co ... dis 10 %
" Spear & Jackson's ... 5 50 to £ gold—new list
" Sandusky Tool Co ... dis 10 %
Plow Bits, Greenfield Tool Co ... dis 10 %
Pliers and Nippers.
Button's Patent ... dis 33⅓ %
Hull's Patent Nippers ... dis 25 %
Leach's Patent Wire Cutters ... per doz $6 50—dis 15 %
Gas Pliers ... dis 25 %
Plumbs and Levels.
Stanley R. & L. Co.'s Pat. Adjustable ... dis 65&10 %
" " " Non-Adjustable ... dis 65&10 %
Chapin's ... dis 66⅔&10 %
Standard Rule Co.'s New Adjustable ... dis 60&10 %
Standard Rule Co.'s Non-Adjustable ... dis 60&10&10 %
Pocket Levels ... dis 50&10 %
Johnson's Patent Adjustable ... dis 60&10 %
Pulleys.
Hot House and Tackle ... dis 60&10 %
Jap'd Screw ... dis 60&10 %
Brass Screw ... dis 60&10 %
Jap'd Side ... dis 60&10 %
" Clothes Line ... dis 60&10 %
Hay Fork ... per doz $4 50 @ 5 00, dis 10 %
Pumps.
Douglas Cistern, etc ... new list dis 25 %
" S. & F ... new list dis 20 %
Union Mfg. Co.'s Cistern and Pitcher ... dis 25 %
" " " Rams ... dis 20 %
" " " Garden Engines ... dis 10 %
Cucumber (Burlingham & Purdy)—
6 ft. No. 3, with 12 ft. pipe ... $4·00 net
6 ft. No. 1, with 12 ft. pipe ... 4·50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe, 8c. per ft.; Coupling, 20c. per ft.
Punches.
Belt or Drive ... per doz $1·50 net
Spring ... per doz $7·00—dis 20&10 %
Rail.
Sliding Door, Wrought Brass ... ℣ ℔ 44c., dis 10 %
" " Iron, Painted ... ℣ foot 9c—dis 55&10 %
Barn Door, ½, ⅝ and ¾ inch ... dis 60&10&10 %
" " for N. E. Hangers ... dis 60&10&10 %
Rakes.
Cast Steel ... dis 35 %
$8 00 9 00 10 00 11 00
8 10 12 14 teeth.
Malleable ... dis 35 %
$5 00 5 50 6 00 6 50
9 11 13 15 teeth.
Razor Straps.
Evan's ... dis 25&10 %
Genuine Emerson (B. F. Badger or C. Emerson) ... dis 25 %
Imitation Emerson ... ℣ doz $2·75—dis 40 %
Hunt's ... dis 40 %
Chapman ... dis 10 @ 15 %
Torrey's ... dis 10&10 %
Saunder's ... net @ 10 %
Rivets.—Old Colony.
Iron and Tinned ... dis 25&7½ %
In bulk ... dis 7½ %
Copper Rivets and Burrs ... dis 20 %
Nos. 7 8 9 10 11 12 13 14 15
Per lb. 49c 50c 52c 54c 56c 58c 60c 65c 70c
Rivet Sets ... net
Rods.
Stair ... dis 33⅓ %
" American Patent ... dis 33⅓ %
Rollers.
Barn Door ... revised list dis 60, 10&10 %
Novelty ... dis 10 %
Rope. Manufacturers' List of May 10, 1875.
Manila ... ½ inch and larger ℣ ℔ 15 c
" ... ⅜ inch ℣ ℔ 15½c
" ... ¼ and 5-16 inch ℣ ℔ 16 c
Manila Lath Yarn and Tar'd Rope ... ℣ ℔ 14½c
" Hay Rope ... ℣ ℔ 15½c
Sisal ... ½ inch and larger ℣ ℔ 12 c
" ... ⅜ inch ℣ ℔ 12½c
Sisal ... ¼ and 5-16 inch ℣ ℔ 13 c
" Hay Rope ... ℣ ℔ 12½c
Rules.
Boxwood, Ivory.
Chapin's ... dis 66⅔&10 % dis 50&10 %
Stanley ... dis 70 % dis 55 %
Standard ... dis 70 % dis 50&10 %
Stephens' ... dis 70&10 % dis 55&10 %
Willis Thrall & Son ... dis 55&10 % dis 45&10 %
Sad Irons.
From 4 to 10 lbs ... ℣ ℔ 3⅝ @ 4c net
Sad Iron, Nickel Stand attached ... ℣ ℔ 9c
Self-Heating ... per doz $10 00 net
" Tailors' ... per doz 22 50 net
Sand Paper.
Beader & Adamson's Flint, 00 to 1½ ... $4 25 ℣ ream }
" " " 2, 2½ & 3. 4 75 " } dis
" " Assorted. 4 25 " } 15 %
" " Star ... ℣ ream $3 25 }
" " Emery ... ℣ ream $6 50 @ 11 50 }
New England, same list as B. & A. Flint ... dis 15 %
H. B. & M. Roman Flint ... dis 15 %
Sash Cord.
Common ... ℣ ℔ 18 @ 20c. net
Patent ... ℣ ℔ 24c. net
Silver Lake, Russia Flax ... ℣ ℔ 55c }
" " White Cotton ... ℣ ℔ 55c } net
" " Drab Cotton ... ℣ ℔ 60c }
Sash Locks.
Clark's, Nos. 1 and 2, $10·00 per gross ... dis 33⅓ %
Ferguson's ... dis 33⅓ %
Norwich ... dis 15 %
Walker's ... list net
New England ... dis 20 %
Sash Weights.—Solid Eyes ... ℣ ℔ 2c
Sausage Stuffers or Fillers.
Miles ... ℣ doz $20—dis 10 %
Stow or Perry ... ℣ doz No. 1, $15; No. 0, $21—dis 15 %
Draw Cut No. 4 ... each $30 00—dis 20 %
Saw Frames ... per gross $18 00—dis 10&10 %
Saw Rods ... $10 list, dis 10&10 %
Saws.
Spear & Jackson's old pattern ... $4 50 to £ gold
Spear & Jackson's American Pattern ... $3·55 to £ gold
John Spear ... $3 60 to £ gold
Am. Saw Co ... new list
Perforated Cross Cuts, all kinds ... 68c ℣ foot
Inserted Tooth ... dis 10 %
All else ... dis 12½ %
Disston's Circular ... dis 20 %
" Mill ... dis 25 %
" Cross Cut ... dis 15 %
" other kinds ... dis 12½ %
H. W. Peace's Circulars ... dis 25 %
" Other kinds ... dis 20 %
Wm. McNiece's Hand, Cross Cut and Circular ... new list dis 15 %
Wm. McNeice's Patent Pole Pruning Saw ... dis 10 %
" " Compass Saw ... net.
E. M. Boynton's Lightning ... dis 40 %
" " Others ... dis 15 %
Wheeler & Clemson Mfg. Co.'s Hand ... dis 15 %
" " Cross-Cut ... dis 30 %
Livingston's Butcher and Kitchen ... dis 12½ %
" Framed Wood—
Nos. 101 102 103 105 106
Per doz $12·00 10·00 12·00 8·00 7·00—net
Saw Sets.
Stillman's Genuine ... ℣ doz $5·00—dis 10 %
" Imitation ... ℣ doz 3·25—dis 20 %
Aiken's Pattern ... ℣ doz 7·00—dis 25&10 %
" Genuine ... ℣ doz $15·00—dis 25 %
Hart's Patent ... dis 15 %
Nash's ... dis 20&10 %
Bemis & Call's ... dis 20 %
Hotchkiss' ... ℣ doz 5·50—dis 10 %
Common Lever ... per doz $2 00—dis 20 %
Leach's ... dis 15 %
Scales.
Hatch, Counter ... ℣ doz $36—dis 25 %
" Tea ... ℣ doz $15—dis 25 %
Union Platform ... $6·00, $7·50—dis 40 %
Turnbull's ... dis 20 %
Brown's ... dis 25&5 %
Fairbanks' ... new list dis 15 @ 20 %
Howe's ... dis 15&5 %
Chatillon's Grocers' ... new list
" Eureka ... dis 20 %
Universal Family ... dis 20 %
Scale Beams.
No. 1 300 to 1200 lbs ... 90c ℣ cwt } dis ... 33⅓ %
No. 2 " " ... 75c ℣ cwt }
Scrapers.
Box, 1 Handle ... per doz $5·00, dis 10 %
" 2 " ... per doz 6·00, dis 10 %
Foot ... dis 60 & 10 %
Ship (common) ... per doz $3 00 net
Ship—Providence Tool Co ... dis 10 %
Screw Drivers.
Hart, Bliven & Mead ... dis 55&10 %
Douglass Mfg. Co ... dis 20&10 @ 25&10 %
Disston's ... dis 40&10 %
Screws.
Flat Head Iron, List of April 1, 1875 ... dis 62½ %
Round Head Iron " " " ... dis 50 %
Flat Head Brass ... dis 52½ %
Round Head Brass ... dis 50 %
Round Head Silver Capped, List March 1 ... dis 25 %
Hand Rail ... dis 55&10 %
Coach or Lag ... dis 30&10 @ 40 %
Coach, Patent Gimlet Point, List Jan. 1, 1875 ... dis 35 %
Bed ... list net
Japanned (List of Flat Head Iron) ... dis 50&10 %
Machine—Flat Head, Iron, List Jan. 12, 1875 ... dis 25 %
" " Brass, " " ... dis 15 %
Round Head, Iron, " " ... dis 20 %
" " Brass, " " ... dis 10 %
English, Flat Head, Iron; American List.
Nettlefold & Chamberlain's ... dis 62½&12½ %
Birmingham Sc'w Co ... dis 62½&12½ %
Bench—Iron ... dis 60, 10&10 %
" —Wood, Beach ... ℣ doz $3·00 net
" " Hickory ... dis 20&10 %
Hand ... dis 25&10 %
Jack—Bell Bottom ... dis 15 %
Scythes.
Blood's German Steel, Grass ... ℣ doz $10 00 }
" Cast " " ... ℣ doz 11 00 }
" Silver " " ... ℣ doz 12 00 }
" German " Grain ... ℣ doz 14 00 } dis $1·50
" Cast " " ... ℣ doz 15 00 } from list
" Excelsior and Granger ℣ doz 11 00 }
" Young America ... 10 50 }
" Silver Clipper ... 13 00 }
Scythe Snaths ... dis 20 %
Sieves.—Mann's Patent ... New list net
14 16 18 20 24 30 mesh
Iron ... $3·00 3·00 3·25 3·50 3·75 4·75 ℣ doz
Plated. 3·50 3·75 4·00 4·25 4·50 6·00 "
Wood Rims ... 18 mesh, $1·50 per doz, dis 10 %
Shears and Scissors.
Cast Steel ... dis 75 @ 75&10 %
Cast Iron ... New list July 15 ... dis 30 %
Heinisch Sons' Trimmers and Scissors ... dis 65 %
" " Standard quality Shears and Trimmers ... dis 40 %
Seymour's Straight Trimmers ... dis 60&10 %
" Scissors ... dis 50 %
Pruning ... per doz $10 00—dis 35 %
Barnard's Lamp Trimmers ... per doz $8·75
Sheaves.
Sliding Door, M. W. & Co. list ... dis 40&2 %
" R. & E. list ... dis 50&2 %
" Patent Roller ... dis 25 %
" " " Hatfield's ... dis 30 %
" Russell's Anti-Friction ... dis 50 %
Sliding Shutter, R. & E. List ... dis 50&2 %
Shovels and Spades.
Ames ... dis 20 %
Birmingham Shovel Co ... dis 15 %
Rowland's ... dis 25 %
Old Colony ... new list dis 10&5 %
Middleboro' Shovel Co ... new list dis 20 %
C. E. Jennings ... New list dis 30&10 %
Dunning's Shovels and Scoops ... dis 20&7½ %
Shovels and Tongs.
Iron and Brass Head, R. & E. list ... dis 50&10&2 %
" " Hart's ... dis 55&10 %
Polished Steel ... dis 50&10&2 %
Skates.
Barney & Berry's
N. Y. Club ... ℣ pair $2·75 }
B. & B. Club ... " 3·50 } dis 25 %
All Clamp ... " 4·25 }
Rink ... " 8·00 }
Florence Club ... per pair $3·50—dis 25 %
" Steel ... per doz $9 net
Peck & Snyder's—
American Club, Polished ... ℣ pair $5·00
" " Blued Top ... ℣ pair $3·75 net
Slates.
Square Frames, Round Cornered, by case ... dis 40&10 %
Less than a case ... dis 30 %
Spoke Shaves.
Iron ... dis 33⅓&10 %
Wood ... dis 30 %
Bailey's ... dis 20&10 %
Spoons.
Tinned Iron ... dis 10 %
By the case ... dis 20 %
Basting ... dis 10 %

Britannia ... dis 50&5 @ 55 %
" Boardman's, new list ... dis 55 %
Rogers & Bro., A 1 ... dis 50 %
Derby Silver Co ... dis 50 & 5 %
Holmes, Booth & Haydens ... dis 50 %
Nickel Silver Co ... dis 40 %
German Silver ... dis 30 @ 33⅓ %
Tin (P. S. & W.)—
Teas ... $1·50 ₩ gross, net
Tables ... 2·75 " net

Stocks and Dies ... dis 5&10 %

Stone.
Hindostan Stone ... ₩ ℔ 6c }
" Axe Stone ... ₩ ℔ 8c } dis 20&10 %
" Slips ... ₩ ℔ 10c }
Sand Stone ... ₩ ℔ 6c—dis 20&10 %
Washita Stone ... No. 1, ₩ ℔ 22c net
" ... No. 2, ₩ ℔ 17c net
" Slips ... No. 1, ₩ ℔ 45c net
Arkansas Stone ... No. 1, ₩ ℔ $1·25 net
" Slips ... No. 1, ₩ ℔ $2·00 net
Grindstones, Family, J. F. Green & Bro ... dis 20 %

Stove Polish.
Joseph Dixon's ... ₩ gross, 6 00
Gem ... ₩ gross $4 50
Gold Medal ... ₩ gross $6 00 dis 25 %

Squares.
Steel ... dis 50 %; full cases, dis 50&10 %
Iron ... dis 50 %; full cases, dis 50&10 %
Nickel Plated ... add $2 50 @ $4 00 ₩ doz net
Try Squares and T Bevels ... dis 45&10 %
Star Try Squares and Bevels ... dis 30 %
Disston's Try Squares No. 1 ... dis 20 %
" " No. 2 ... dis 40 %
" " Improved ... dis 20 %

Tacks.
Full Weight American Iron ... dis 45&7½ %
Half Weight American Iron ... dis 72½&7½ %
Carpet ... dis 7½ %
Brads American Half Weight ... dis 50&7½ %
Finishing Nails ... ⅜ ⅝ ¾ 1 1½ in. and over
₩ ℔ ... 25c 20c 18c 14c 12c dis 7½ %
Trunk and Clout ... ⅜ ⅝ ¾ 1 1½ in. and over
₩ ℔ ... 25c 20c 18c 14c 12c dis 7½ %
Copper Tacks ... ₩ ℔ 50c—dis 7½ %
Iron Shoe Nails, ₩ ℔ 4-8 and longer, 9½c; 3½-8, 10c ... dis 7½ %
Double Pointed ... dis 33⅓&10 %

Tapes, Measuring.
American Flask and Cap Co ... dis 20 %
Eddy's ... dis 20 %

Tea Trays.
American Tea Tray Co ... dis 15 %

Thermometers.
Tin Case ... dis 50&10 %

Toe Calks.
Winsted ... ₩ ℔ 13c., dis 10&10 %

Tobacco Cutters.
Enterprise Mfg. Co. (Champion) ... dis 20 %
Wood Bottom ... per doz $12—dis 25&10 %
All Iron ... per doz $10·50—dis 25&10 %

Tinners' Tools and Machines.
P. S. & W ... list net

Traps.
Game, Newhouse ... dis 25 %
" Peck, Stow & Wilcox ... dis 30 %
" Hotchkiss ... dis 30 %
" Blake's Patent ... dis 30 %
Mouse, Wood Choker ... ₩ doz holes, 15 @ 16c
" Patent Chocker (Union Nut Co.) ... ₩ doz holes 16 @ 18c net
" Round, Wire ... ₩ doz $1 50 to 2 00 net
" Square, " ... ₩ doz 2 00 to 2 50 net
Cage, " ... ₩ doz 2 50, dis 10 %

Trowels.
Lothrop's Brick and Plastering ... dis 10 %
Disston's Brick and Plastering ... dis 12½ %
Rose's Brick ... dis 5 %
Brades' Brick ... gold. dis 10 %
Worrall's Brick and Plastering ... dis 20 %
Garden ... dis 25 %

Triers.
Butter and Cheese ... dis 25 %

Ventilators (Window).
Nickel and Gilt ... per dozen $16·00 @ 18 00

Vises.
Trenton Vises, Solid Box.
40 to 160 lbs ... 16c
160 and over ... 18c
Peter Wright's ... ₩ ℔ 15⅝c. gold
Wilson's Solid Box ... dis 15 @ 20 %
31 to 160 lbs ... 18c
160 and upward ... 22c
Wilson's Parallel ... dis 30 %
Sargent's " ... dis 50&10&10 %
Backus & Union, Parallel ... dis 25 %
Buffalo, Parallel ... new list dis 25 %
Fisher & Norris' Double Screw Parallel ... dis 15&10 %
Trenton Parallel ... dis 15 %
Merrill's Parallel ... dis 15 %
Parker's ... dis 20 %
Stephens' Parallel ... dis 15 @ 20 %
Bonney's Saw Filers ... per doz $20—dis 20 %
Stearn's Saw Filers ... per doz $20—dis 20 %

Wheel Barrows.
Canal (Pugsley & Chapman) ... new list dis 12½ %
Coal, Garden and Stone (Pugsley & Chapman) ... dis 25 %

Well Wheels.
Revised list ... dis 60&10 %

Wire.
Brass and Copper ... dis 10 %
Bright and Annealed ... Nos. 0 @ 18 dis 40 @ 45 %
" " ... " 19 @ 26 dis 47½ @ 52½ %
" " ... " 27 @ 36 dis 52½ @ 57½ %
Coppered ... " 0 @ 18 dis 35 @ 40 %
Galvanized, Nos. 0 to 9 ... ₩ ℔ 8½ @ 9c net
Galvanized, Nos. 10 to 18 ... market list dis 10 @ 15 %
Tinned ... dis 25 @ 30 %
Cast Steel ... dis 15 @ 20 %
Tinned Broom Wire ... dis 30 @ 35 %
Galvanized Telegraph, Nos. 8 and 9 ... ₩ ℔ 9c @ 9½c
Galvanized Telegraph, Nos. 10 and 11 ... ₩ ℔ 10c @ 10½c
" " 12 ... ₩ ℔ 10½c @ 11c
Annealed Fence, Nos. 8 and 9 ... dis 40 @ 45 %
" Grape, " 10 to 14 ... dis 40 @ 45 %
Fence Staples ... ₩ ℔ 8 @ 8½ %
Stubs' Steel Wire ... $7 00 to 8 gold
Judd's Picture Wire ... dis 50
Clothes Line Wire ... per coil 60c. net

Wrenches.
American Adjustable ... dis 45 %
Baxter's Adjustable "S" ... dis 20 %
" Diagonal ... dis 20 %
Collins & Co.'s ... dis 45 %
Coes' Genuine ... dis 40&5 %
" Pattern (Wrought) ... dis 50&10 %
" " (Malleable) ... dis 60&10 %
Lindsay's Patent ... dis 25 %
Taft's Pattern ... dis 70&10 %
Davis Patent Duplex ... new list dis 25 %
Bemis & Call's Patent Combination ... dis 20&5 %
" " Merrick's Pattern ... dis 25&2½ %
" " Brigg's Patent ... dis 15&10 %
Aiken's Pocket ... per doz $10·00—dis 50&10 %

Wringers.	Less than 2 doz	2 doz lots
Providence ... ₩ doz	$77·00	$70·00
Reliance ... ₩ doz	69·00	67·00
Universal—Extra ... ₩ doz	72·00	70·00
Novelty ... ₩ doz	77·00	70·00
Sherman ... ₩ doz	72·00	70·00
Wringers without Cog Wheel ... ₩ doz	58·00	60·00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 5 %.
COMMON STAMPED WARE, &C.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4½	5 3-16	6 5-16	6⅜	7 11-16
Per gross	$2·00	2·60	3·40	4·25	5·75
Quarts	6	8	10	12	
Inch	8⅝	9⅜	9⅞	10 9-16	
Per gross	$6·50	8·00	8·50	11·50	

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11⅛	12⅛	13⅛
Per gross	$15·00	18·00	22·00

Pot Covers.

Inch	7⅜	8⅛	8⅜	9⅛	9⅜	10⅛
Per gross	$5·75	6·00	6·25	6·75	7·25	8·25
Inch	10⅜	11⅛	11⅜	12⅛	12⅜	13⅛
Per gross	$8·75	9·50	10·00	13·00	13·75	16·50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	5·50	5·80	8·50	10·50

Deep Pie Plates.

Inch	9	10
Per gross	$8·50	10·50

Jelly Cake Pans.

Inch	9	10
Per gross	$7·50	10·00

Coffee Pot Covers.

Plain	1½	2	3	4	5	6 qts.
Inch	3	3⅜	3⅞	4⅜	5	
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00
Rimmed	2⅜	3	3⅜	4	4⅜ inches.	
Per gross	$2·25	2·50	3·00	3·50	4·00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11	11½
Per gro.	$6·00	6·50	6·75	7·25	7·75	9·50	10·00	12·00	13·00

Grater Plates.

Sheet	½	¾	1
Per gross	$3·00	6·00	11·50

Scolloped Cake Pans.

	Small.	Large.
Without Tubes ... per gross,	$8·00	11·50
With Tubes ... "	10·50	14·00

Stamped Square Pans.

No.	½	
Per gross	$7·50	14·50

Common Square Pans (One Sheet).
Per gross ... $11·50

Milk Skimmers (Plain or Pierced).
Per gross ... $4·00

Lettered Plates

Inch	5½	6
Per gross	$3·25	4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain ... per gro.	$4·00	4·50	5·00	5·50	6·00	7·00
Jap'd or Burn'd .. "	6·00	6·50	7·00	8·00	8·50	10·00

Coffee Boiler Lips.

	Small.	Large.
To Rivet ... per gross,	$0·80	1·10
To Solder ... "	1·25	

STAMPED DEEP AND RETINNNED WARE, dis 30 %.

Plain Stamped Water Dippers.

	½ pint.	Pint.	Quart.	quarts.	2½ quarts.
Per doz	·90	1·15	1·50	1·85	2·50

Retinned Milk Pans.

Qts	½	1	1½	2	3	4	5	6	8	10	12
₩ doz.	1·20	1·50	1·75	2·00	2·25	3·15	3·50	3·85	4·75	5·25	5·75

Dipper Bowls, Plain Stamped—

Pints	½	1	Quarts	1	2	2½
Per doz.	·50	·75	Per doz	1·00	1·25	1·75

Dipper Bowls, Retinned—

Pints	½	¾	1	Quarts	1	2	2½
Per doz.	·75	·93	1·05	Per doz	1·40	1·75	2·25

Pans.
Dish Pans, Retinned Deep—

Quarts	7	8	10	14	17	21	30
Per doz.	8·50	9·50	11·00	13·00	16·00	19·00	30·00

JAPANNED TIN WARE, dis 5 %.

Cannisters, Common ... Pound ½ 1 2 3
Per gross $10·50 15·00 24·00 30·00
Canisters, Hinged ... Pound 1 1½ 2 3 4
Per gross $19·00 25·00 32·00 37·00 42·00
Canisters, Square ... Pound 2 4 6 8 12 16
Per doz $3·00 4·25 5·00 5·75 8·00 9·00
Candlesticks, Japanned ... No. 1 2
Per gross $8·00 7·00
Cake Boxes, Round ... per nest, $2·25
Square ... per nest, 4·25
Chamber Pails, Japanned
Nos ... 2 3 4 5
Green, per doz ... $8·00 9·00 11·00 13·00
Oak " ... $9·00 11·00 12·00 13·50
Dust Pans, Corrugated ... per gross, $22·00
Box Graters ... per gross, $3·75
Molasses Cups ... Pint ½ 1 2 4
Per gross $13·00 16·00 28·00 42·00
Lunch Boxes, per doz ... 7 in $2·00; 8 in. $2 50
Pepper Boxes Japanned ... ₩ gross small, $3·00; large, $4·00
Toy Banks, House ... No. 1 2
Per gross $7·00 5·50
Toy Banks, Gothic ... No. 1, $6·00, No. 2, 4·00 per gross
Toy Cups, Straight ... No. 1 2 3
Per gross $3·75 3·25 2·75
Toy Cups, Flaring ... No. 1, $4·25; 2, $3·75 ₩ gross
Toy Pails, Covered ... No. 1, per gross $4·00
Toy Rattles ... per gross, $2·00
Trunks, Wire Handled ... per nest (5) $1·75
Spittoons, Tin ... per gross, $25

PLANISHED TIN WARE, dis 20 %.

Planished Coffee Pots, Round.
Each ... ·60 ·75 ·85 ·95 1·15 1·25 1·30 1·40
Pints ... 1 2 3 4 5 7 8
Planished Tea Pots, Round.
Each ... ·70 ·80 ·95 1·05 1·25
Pints ... 2 3 4 5 6
Planished Tea Pots, Oval.
Each ... ·70 ·80 ·90 1·05 1·15 1·40 1·75
Pints ... 1 2 3 4 5 6 8
Planished Pepper Boxes, No. 1 ... per doz., $1·52
Planished Flour Dredges, No. 3, $2·10; 4, 2·45 ₩ dozen.
Planished Round Coffee Biggins.
Pints ... 2 3 4 5 6 8
Each ... $1·00 1·10 1·20 1·40 1·60 2·00
Planished Oval Coffee Biggins.
Pints ... 2 3 4 5 6 8
Each ... $1·15 1·25 1·40 1·60 1·80 2·25
Planished Oval Chafing Dishes, Imperial Covers.
Inch ... 10 12 14 16 18 20 22 24
Each ... $3·85 5·00 6·25 7·60 9·00 11·50 13·00 16·50
Planished Oval Chafing Dishes, Low Covers.
Inch ... 10 12 14 16 18 20
Each ... $3·25 4·35 5·20 6·20 7·80 9·25
Planished Low Dish Covers.
Inch ... 10 11 12 14 16 18 20
Each ... $ ·70 ·80 1·00 1·25 1·50 2·00 2·75
Planished Imperial Dish Covers.
Inch ... 10 11 12 14 16 18 20 22 24
Each ... $1·55 1·70 2·00 2·60 3·15 3·45 4·60 5·45 6·30
Planished Etnas, on Stands.
Pints ... 1½ 3 4 5
Each ... $0·90 1·00 1·20 1·50 1·75
Planished Liquor Mixers ... Nos. 0 1 2
Per doz $2·00 2·10 2·45
Planished Oval Melon Molds.
Nos ... 2 3 4 5 6 7 8 9
Each ... $·60 ·65 ·70 ·80 ·90 1·00 1·15 1·35
Planished Oval Tumbler Warmers.
To fit 1, 2, 3, and 4 O. G. Urns ... each, $2·50
Planished Oval O. G. Urns.
Nos ... 0 1 2 4 5 6 7 8
Each ... $4·90 5·45 6·30 7·00 7·75 9·25 11·25 12·50 15·50
Planished Round Urns.
Nos ... 0 1 2 3 4 5 6 7
Each ... $4·20 4·85 5·45 6·30 7·75 9·00 11·00 14·25
Planished Round Oyster Dishes, (Complete) .. Nos. 1 2
Each $2·10 2·80
Planished Oyster Dish Plates ... Nos. 1 2
Each $0·25 0·30
Oyster Dish Covers ... Nos. 1 2
Each $0·30 0·35

Tea Pot Handles—P. S. & W ... dis 20 %
Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4½ inches ... per gross, $11·50
No. 2, Medium, 5⅝ " ... 12·50
No. 3, Large, 6⅜ " ... 13·50
No. 4, Ex. Large 7¼ in., for Wash Pitchers &c ... 18·00
Solid Iron, Tin Tipped.
No. 10, Small, 4⅜ inches ... per gross, $9·00
No. 15, Medium, 5⅛ " ... 9·50
No. 20, Large, 6⅛ " ... 10·75
Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped ... per gross, $13·50
Saucepan Handles, Of Best Malleable Iron.
P. S. & W ... dis 30 %
Japanned.
No. 1, 5½ inches long ... per gross, $3·50
No. 2, 6 " ... 3·75
No. 3, 6½ " ... 4·00
No. 4, 7¼ " ... 4·25
No. 5, 8 " ... 4·50
No. 6, 9 " ... 4·75
Tinned.
No. 1, 5½ inches long ... per gross, $4·25
No. 2, 6 " ... 4·50
No. 3, 6½ " ... 4·75
No. 4, 7½ " ... 5·25
No. 5, 8 " ... 5·50
No. 6, 9 " ... 5·75
Japanned ... per lb., ·16
Tinned ... " ·20
Iron Kettle Ears (P., S. & W.) ... dis 45 %
Half gross pairs in a package.
Tinned.
Nos ... 1 2 3 4 5 6 7
Per gross pairs .. 88c $1·00 1·50 1·75 2·10 2·75 3·75 4·50
Black.
Nos ... 1 2 3 4 5 6 7 8
Per gross pairs ... 75c 88c $1·35 1·50 1·75 2·25 2·75 4·00
Tinned Tea Kettle Ears.
Nos ... 4 5 6
Per gross pairs ... $1·75 2·10 2·75
Extra Heavy Tinned Kettle Ears—French Pattern.
Nos ... 1 2 3 4 5 6 7
Per gross pairs ... $1·00 1·25 1·50 1·75 2·00 2·50 3·00
Malleable Iron Kettle Ears for Coal Hods &c.
P., S. & W ... dis 20 %
No. 10 Small ... ₩ ℔, Tinned 2⅛c; Black, 16c
No. 20 Medium ... ₩ ℔, " 20c; " 16c
No. 30 Large ... ₩ ℔, " 20c; " 16c
No. 40 Extra Large ... ₩ ℔, " 20c; " 16c
In cases of 100 lbs. each.
Milk Can or Boiler Handles—(P. S. & W.) 4½ in. dis 25 %
Plain, 8c.; Japn'd, 9c.; Tinned, 15c. per lb.; Malleable Clips or Ears to match, Tinned ... 30c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.) ... dis 35 %
Plain with drilled holes, per lb ... 9c
Plain with Cast " ... 8c
Plumbers' Scrapers—(P. S. & W) ... dis 25 %
Extra quality, length 6 in., per doz ... $4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1⅞ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1¼ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1 ... ₩ ton, $26 00 @ 27 00
Foundry No. 2 ... " 24 00 @ 25 00
Gray Forge ... " 22 00 @ 24 00
White and Mottled ... " 21 00 @ 22 00
SCOTCH.
Coltness ... Nominal " 31 00 @ 32 00
Glengarnock ... "
Gartsherrie ... "
Eglinton ... Nominal " 29 00 @ 30 00
Bar Iron.
Am. Refined, at mill ... 2·6c. @ 2·8c
Rails.
Welsh, gold ... ₩ ton, 48 00 @ 50 00
American, at works, currency ... " 47 00 @ 50 00
Old Rails ... 36 00 @ 36 50
Scrap.
Wrought Scrap ... " 30 00 @ 32 00

Bar Iron from Store.
Common Iron.
⅜ to 2 in. round and square ... } ₩ ton $57 50
1 to 6 in. x ⅜ to 1 in ... }
Refined Iron.
⅜ to 2 in round and square ... } " 60 00
1 to 6 in. x ⅜ to 1 in ... }
1 to 6 in. x ¼ and 3-16 ... " 65 00
Shafting Iron—2⅛ to 4 in ... " 67 50 @ 77 50
Rods—3-16 to ⅜ round and square ... " 62 50
Bands ... " 75 00
Hoops—⅛ to 2 in ... " 82 50 @ 132 50
Swedish Iron.
Ordinary sizes ... " 132 50 @ 135 00
Plow size ... "

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos 10 to 20 ... ₩ ℔	4c	5c	5½c
21 to 24 ... "	4½c	5⅛c	5⅝c
25 to 26 ... "	4⅝c	5⅜c	5⅞c
27	4⅞c	5⅞c	6c
28 ... "	5c	5c	6⅛c

Galvanized, 14 to 20, prime, ₩ ℔ 9c; 2d quality ... ₩ ℔ 8c
" 21 to 24 " " 9½c " ... 8½c
" 25 to 26 " " 10c " ... 9c
" 27 " " 11c " ... 10c
" 28 " " 12c " ... 11c
Patent Polished ... ₩ ℔ 14c
Russia, Nos. 8 to 16 ... " 16c
" Stained, No. 1 ... " 15c
Belgian ... 10c
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON.

4	5	5½	6	7 inch.
$2·50	2·50	4·50	5·25	6·50 per doz.

RUSSIA IRON.

4½	5	5½	6	7 inch.
$5·00	7·00	9·50	12·00	14·00 per doz.

COPPER—DUTY. Pig, Bar and Ingot, 5c.; old copper, 4 cents ₩ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem.
American Ingot ... ₩ ℔ 23½ @ 23⅝c
English " ...
SHEATHING, BRAZIERS' COPPER, BOLTS, &C.
Braziers' Copper, ordinary sizes, over 16 oz., per square foot ... 31c. ₩ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot ... 33c. "
Braziers' Copper, 12 oz. per square foot and lighter ... 33c. "
Circles less than 84 inch in diameter ... 34c ₩ ℔
Circles, 84 inch diameter and over ... 37c. "
Segment and Pattern Sheets ... 34c. "

Locomotive Fire Box Sheets ... 31c. ₩ ℔
Sheathing Copper, over 12 oz. per sq. ft ... 30c. "
" " 12 oz. ₩ sq. ft. and lighter ... 35c. "
Bolt Copper ... 31c. "
Copper Bottoms, 33c. ₩ ℔ ... net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.
O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier ... 37c. By the case, 36 . ₩ ℔
12 oz. and lighter ... 40c. " " 39c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier ... 39c. By the case, 38c. ₩ ℔
(And all sizes not over 30 inches wide.)
30x60
14 and 16 oz. and heavier ... 41c. ₩ ℔
12 oz ... 44c. "
TINNING.
14x48, by the case ... 6c. ₩ sheet
14x48, less than case ... 8c. "
Other sizes not larger than 30x60 ... 2½c. ₩ sq.
Larger than 30x60 ... 5c. "
LEAD—DUTY: Pig ₩ per 100 lbs.; old Lead, 1½ cent per ℔.; Pipe and Sheet, 2¼ cents per lb.
Spanish ... 7c gold
German Refined ... 6⅝c gold
English ... 6¾ @ 7c gold
American ... 6 @ 6½c gold
Bar ... dis 10 % ... 8¾c.
Pipe ... dis 10 % ... 9¾c.
Tin Lined Pipe ... dis 10 % ... 16½c.
Sheet ... dis 10 % ... 9¾c.
Shot ... dis 10 % Drop, 9⅜c. Buck, 10⅜c.
BABBITT METAL.
P., U. ... ₩ ℔ 8½ @ 9c
NA. 25c.; B, 20c.; C, 15c.; D, 12c. ₩ ℔.
SOLDER ... No. 1, 14c.; No. 2, 13 @ 12⅜c
STEEL.—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2¼ cents; over 7 cents, and not above 11, 3 cents per lb. over 11, 3½ cents per lb. and 10 % ad val. Railway Bars 1¼ cents per lb. Railway Bars, in part Steel, 1 cent per lb. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as

American Cast Steel.
Tool ... 15 @ 16c
Spring ... 10c
Homogeneous ... 12½c
Tire ... 12½ @ 13½c
Machinery (round and square) ... 10 @ 11c
File ... 11c
Sheet ... 14 @ 16c
Saw Plate, mill and mulay ... 14 @ 16½c
Saw Plate, gang and X cut ... 13 @ 14c
" circular as to size ... 18 @ 30c

Chrome Steel.
Tool ... ₩ ℔ 20 @ 21c
Tool, extra fine ... " 40 @ 75c
Spring ... ₩ ℔ 12c and upward
Machinery ... ₩ ℔ 14c
Hammer ... " 15c,
Gun or Homogeneous ... " 16c
English Steel.—payable in gold, net.
" Best Cast ... ₩ ℔ 17½c
" Extra Cast ... " 18½c
" Round Machinery, Cast ... ₩ ℔ 10¼ @ 11½c
" Swaged, Cast ... " 19½c
" Best Double Shear ... " 17½c
" Blister, 1st quality ... " 14½c
" " 2d quality ... " 13 c
German Steel, Best ... " 11½c
do 2d quality ... " 10½c
3d quality ... " 9½c
Sheet Cast Steel, 1st quality ... " 15⅜c
" " 2d quality ... " 14½c
" " 3d quality ... " 12½c
File Steel, Flat and ½ Round ... " 12½c
" Square and Round ... " 12½c
Mill ... 13½c
Taper to 4 inch ... " 16c
" Taper 3 and 3½ inch ... " 18c
SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.
Silesian, cash ... 6⅞ @ 7c., gold
American " ... 7¼ @ 11c., currency
TIN—DUTY: Plates, Sheets, Tagger and Terne, 1·1c per lb.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent.
Banca ... ₩ ℔ 23½ @ 24c., gold
Straits ... ₩ ℔ 19 @ 20c., gold
English ... ₩ ℔ 19 @ 20c., gold

CHARCOAL TIN PLATE.
I C 10x14, Prime Charcoal ... 9·50
12x12, " ... 10·00
14x20, " ... 10·25
I X 10x14, " ... 11·75
12x12, " ... 12·25
14x20, " ... 12·75
D C 12½x17 " ... 9·00
D X 12½x17 " ... 11·25
For each additional X add ... 2·25

COKE TIN PLATE.

	Best	2d Quality.	Ordinary.
I C 10x14	$ 9·00	8·50	7·75 @ 8·25
I C 12x12	9·50	8·75	
I C 14x20	9·50	8·75	7·75 @ 8·00

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$ 8·50	8·00 @ 8·50	7·75 @ 8·00
I X 14x20	11·00		
I C 20x28	18·00	16·25 @ 17·50	16·25 @ 16·50
I X 20x28	23·00		
I C 20x200	23·00		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ₩ ℔.
Sheet ... cask 10¼c
" ... open 10⅜c

Old Metals.

(Dealers Selling Price.)

Copper ... @ 20
Yellow metal ... 14 @ 15
Brass ... 13 @ 14
Heavy Composition ... 17 @ 18
Old lead, solid ... 6 @ 6¼
Tea lead ... 5
Wrought iron ... 1⅛ @
Sheet iron ... 0⅞ @ 0⅝
Cast iron ... ⅝
Machinery iron ... 1⅛ @ 1
Zinc ... 5 @ 5⅓
Pewter, No. 1 ... 17
" No. 2 ... 10 @ 12
Spelter ... 5 @

Paints, Oils, etc.

Paints.
Black, lamp—Coach Painters ... ₩ ℔ 20c
" " Ordinary ... 6
" Ivory Drop, fair ... 15
" " best ... 2
Black Paint, in oil ... kegs, 8c.; ass't'd cans, 11
Blue, Prussian, fair to best ... 50 @ 75c
" " " " in oil ... 35 @ 65c
" Chinese, dry ... 83c
" Ultamarine ... 25 @ 80
Brown, Spanish ... 1⅛
" Van Dyke ... 9
Carmine, 40 ... $12 00
Green, Chrome ... 15 @ 23c
" " in oil ... 18 @ 25c
" Paris ... good, 30c; best, 40c
" " in oil ... " 30c " 45c
Mineral Paints ... 1⅛ @ 4c
Orange Mineral ... 14c
Red Lead, American ... 9½c
" " English ... 10½c
" Venetian (N. C.) dry ... 2⅜c
" " in oil ... ass't'd cans, 11c; kegs, 8½c
" Indian, dry ... 10c
Rose Pink ... 13c
Sienna, American, Raw ... 4c
" Burnt ... 4½c
" " in oil ... 16 @ 26c
" Raw " ... 15 @ 25c
Umber, Burnt ... 4 @ 8c
" " in oil ... 16 @ 21c
" Raw ... 3½ @ 7½c
" " in oil ... 16 @ 22c
Vermillion, Chinese ...
" English ... 1 10, gold
" Trieste ... 1 10 "
" American, Common ... 23c
White Lead, American, pure dry ... 10c
" " in oil ... 11c
White, Paris, English, prime ... in bbls. 2⅛ @ 2⅜c
Yellow Ochre, French ... 2⅛ @ 2⅜c
" " " in oil ... ass't'd cans, 11c; kegs, 8½c
" " Vermont ... in casks 1½c
" Chrome ... 17 @ 27c
" " in oil ... 18 @ 28c
Zinc White, American No. 1 dry ... 9c
" " 1, in oil ... 11c
" French (Paris) ... 11c
" " in oil ... 12c

Oils.
Linseed Raw ... ₩ gal. casks, 70c. bbl., 71c
" Boiled ... " 75c. " 76
Whale, Crude ... "
" Bleached Winter ... " 75c
Sperm, Crude ... " 1·65
" Winter unbleached ... " 1·90
" " Bleached ... " 2 00
Seal, Extra Refined ... "
Lard, Pure Winter ... " 1·30
" Spring ... " 1·20
Cotton Seed, Crude ... " 60c
" Southern Yellow ... " 65c
" White ... " 1
Neatsfoot, Winter ... 70c @ $1·10
Natural Lubricating ... 38c @ 40c

Sundries.
Asphaltum ... 9c
Benzine ... ₩ gal. 16c
Chalk ... 1⅛c
" Block ...
Dryer, Patent, Am'n ... ass't cans, 10½c.; kegs, 9c
" " English ... " 11c.; " 9c
Flocks ...
Frostings ... 50c
Glue, White ... 33 @ 47c
" Sheet ... 20c
Glaziers' Points, Zinc ... 9c
Gum, Copal ... 36c
" Damar ... 25c
Shellac, English ... 75c
" " dark ... 65c
Litharge ... 10c
Pumice Stone, selected Lumps ... 4 @ 6c
" powdered ... 4c
Putty in bladders ... 3½c
" in bulk ... 3c
Rotten Stone, soft, English ... 8c
Spirits Turpentine ... 38c
Whiting, Spanish ... ¾c

Glass.

French Window—1st, 2d, 3d, and 4th qualities. Per box of 50 feet.

SINGLE THICK.

SIZES.	I.	II.	III.	IV.
6 x 8 to 10 x 15	$7·50	$6·75	$6·25	$5·75
11 x 14 to 16 x 24	8·50	7·75	7·25	6·50
18 x 22 to 20 x 30	10·75	9·75	8·75	7·75
15 x 36 to 24 x 30	12·25	10·75	9·00	
26 x 28 to 24 x 36	13·00	11·50	9·75	
26 x 36 to 26 x 44	14·50	13·25	10·75	
26 x 46 to 30 x 50	15·00	14·00	11·25	
30 x 52 to 30 x 54	16·00	14·50	12·00	
30 x 56 to 34 x 56	17·25	15·50	13·50	
34 x 58 to 34 x 60	18·25	17·25	15·00	
36 x 60 to 40 x 60	20·75	18·75	17·25	

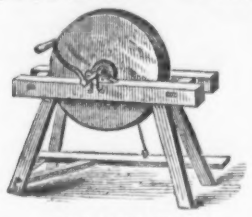
DOUBLE THICK.

SIZES.	I.	II.	III.	IV.
6 x 8 to 10 x 15	$12·00	$11·00	$10·00	$9·25
11 x 14 to 16 x 24	13·75	12·50	11·75	10·50
18 x 22 to 20 x 30	17·25	15·75	14·00	
15 x 36 to 24 x 30	19·75	17·25	14·50	
26 x 28 to 24 x 36	21·00	18·50	15·75	
26 x 36 to 26 x 44	23·25	21·25	17·25	
26 x 46 to 30 x 50	24·00	22·50	18·00	
30 x 52 to 30 x 54	26·75	23·25	19·25	
30 x 56 to 34 x 56	27·75	25·00	21·75	
34 x 58 to 34 x 60	29·25	27·75	24·00	
36 x 60 to 40 x 60	33·25	30·00	27·75	

Sizes above—$12·00 per box extra for every 5 inches.
An additional 10 per cent. will be charged for all Glass more than 40 inches wide. All sizes above 52 inches in length, and not making more than 81 united inches will be charged in the 84 united inches bracket
Discount 50 @ 50&5 %.

Grindstones, Emery, &c.

Walter R. Wood,
GRINDSTONES.



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AMHERST,
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LAKE HURON,
AND BEREA.
Also Scythe Stones.
WORTHINGTON & SONS, Mfrs.,
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OIL  **STONE**
BOYD & CHASE,
388 to 406 East 107th st., N. Y.,
The largest manufacturers in the world of
ARKANSAS & WASHITA OIL STONE.
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Send for circular. Orders solicited from the trade.
Superior Hindostan Stone finished especially for Retail Trade.

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Upon which to run the same, of all kinds.
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Soapstone Register Borders.
For particulars, address,
UNION STONE CO.,
14 Exchange and 26 Devonshire Streets, Boston, Mass

THE LEHIGH VALLEY
Emery Wheel Co.,
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Manufacturers of
"LEHIGH" Emery Wheels and Machines.
Send for Circulars.

And Shaped Diamond Carbon Points, indispensable for Turning Emery Wheels, Grindstones, also Truing up hardened Steel and Paper Calender Rollers, &c. Address, J. DICKINSON, Patentee, *64 Nassau Street, New York.*

DROP PRESSES
Bennett Hotchkiss and N. C. Stiles' Patent.

This Drop (which has been illustrated in this journal of that class in which the Hammer is raised by a still belt or board passing up between two friction rolls, and is so well known that we will only describe our improvements. The patentees we are working under are those of BENNETT HOTCHKISS (who in an interference case with Gooding and Cheney was declared the first inventor) and N. C. STILES. Our improvements consist:

First.—Of an arrangement of parts that makes it the most complete Jobbing Hammer, and will take the place to a great extent, of all other kinds for forging. In addition to the upright rod, which is operated by the hammer to open and close the rolls, we place another rod the lower end of which is secured to the end of a lever which is operated by the hand or foot, which operation also opens and closes the rolls at will. The lower end of this rod has a slot, so that the action of the hammer will not disturb the hand lever, thereby preventing the hand being injured, as otherwise would be the case.

Second.—No dog is used on the upright to hold up the hammer. The belt or board passes up between two clamps located under the rolls, so arranged that as the same [illegible] they will freely open of themselves, but on [illegible] they will close and hold up the hammer to let the hammer fall the clamps are opened by pressure upon the foot treadle.

Third.—The board or belt is secured to the hammer by an elastic connection, which prevents the sudden jar and destruction of the same. The back roll is made adjustable to different thicknesses of board or belt, as also are the clamps. An adjustable collar on the upright rod allows the operator to obtain *any height* of blow desired automatically. If one blow is wanted, press upon the treadle and remove the pressure as soon as the blow is given. Keep the foot upon the treadle and the blows will be repeated until the pressure is removed. If a blow of less hight than the collar is set for is required work the hand lever, which will give you any hight of blow desired. The hammer can be held up at any point below the collar by bringing the hand lever into action when the hammer is at the desired hight, so that the next blow can be given from a state of rest, of less hight than the collar is set for. This is a feature no other drop has; that is, the first blow struck can be of less hight than the second or third, and obtained from a state of rest. A gentle pressure upon the treadle will allow the hammer to go down slowly, but it will stop and remain suspended at any point as soon as the pressure is removed.

The clamps in holding up the hammer keep the board from touching either roll and prevents the same from being worn uneven.

Manufactured only by the
Stiles & Parker Press Co.,
MIDDLETOWN, CONN.

FREDERICK WM. ROEHRIG,
Gilder, Silver & Nickel Plater, 217 Centre St., N. Y. Etching and Gilding, Names, Inscriptions or Ornaments on Iron, Steel, etc., in the richest style. Brilliant Cheap Gilding on Brass Fancy Goods. Bright and mat Gilding on Spelter or Zinc Articles, such as Statues, French Clocks, Chandeliers, etc., warranted not to corrode. Electro-coloring Solid Gold Work in any desirable shade. Bronzed Goods artistically Gilded, Silvered, Nickeled and Oxidized. Silver Plating and Repairing in all its branches, bright and mat on all metals. Nickel Plating on Steel, Brass, etc., in the most improved manner.

L. COES'
Genuine Improved Patent
SCREW WRENCHES.

Manufactured by
L. COES & CO.,
Worcester, Mass.

Established in 1839.

Registered March 31, 1874.

We invite the particular attention of the trade to our New Straight Bar Wrench, *widened*, full size of the larger part of the so called "reinforced or jog bar." Also our enlarged jaw, made with ribs on the inside, having a full bearing on the front of bar (see sectional view), making the jaw fully equal to *any* strain the bar may be subjected to.

These recent improvements in combination with the nut inside the ferrule firmly screwed up flush, against square, solid bearings (that cannot be forced out of place by use), verifies our claim that we are manufacturing the strongest Wrench in the market.

We would also call attention to the *fact*, that in 1869 we made several *important* improvements (secured by patents), on the old wrench previously manufactured by L. & A. G. Coes which were *at once closely* imitated and sold as the *Genuine* Wrench by certain parties who seem to rely upon *our* improvements to keep up their reputation as manufacturers, and although the fact of their imitating our goods may be *good* evidence that we manufacture a superior Wrench, we wish the trade *may not be deceived* on the question of *originality*. Trusting the trade will fully appreciate our *recent* efforts, both in improvements on the Wrench and in the adoption of a Trade Mark, we would caution them against imitations. None genuine unless stamped

"L. COES & CO."

Warehouse, 97 Chambers St., & 81 Reade Sts., N. Y.
HORACE DURRIE & CO., Sole Agents.

NEW MODEL DERINGER REVOLVER.

22 Cal. 7 Shot.

An exact model of S. & W. No. 1 Revolver.

This arm is Half Nickel Plated, and is equal in style of finish to the best arms in the country. Quality of workmanship and material first-class, and guaranteed in every respect.

Price less than any other Hinge Barrel Cartridge Revolver in the market.

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M. H. JONES & CO.
COHOES, Albany Co., N. Y.
Manufacturers of AXES AND EDGE TOOLS.

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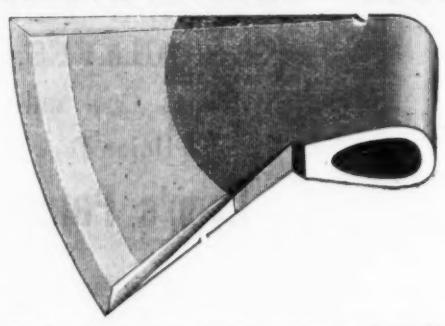

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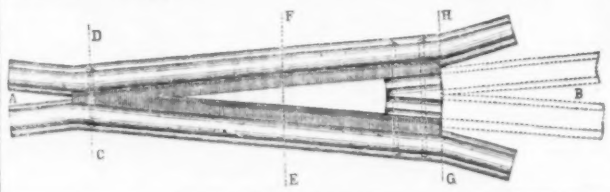

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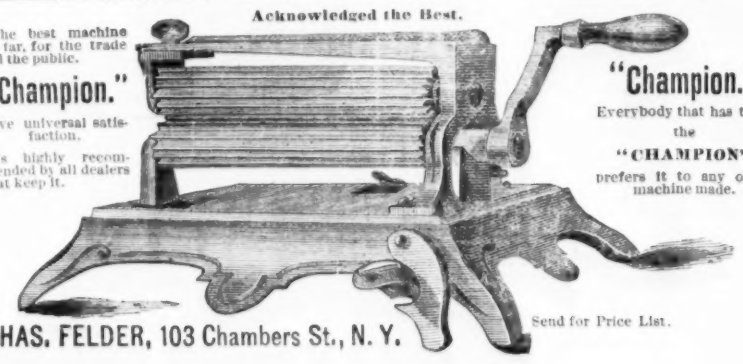
Acknowledged the Best.

The best machine by far, for the trade and the public.

"Champion."
Give universal satisfaction.
Is highly recommended by all dealers that keep it.



"Champion."
Everybody that has tried the "CHAMPION" prefers it to any other machine made.

Send for Price List.

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White Lead, &c.

John T. Lewis & Bros.,
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JOHN T. LEWIS & BROS. WARRANTED PURE WHITE LEAD. PHILADA.

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The Atlantic White Lead and Linseed Oil Company,
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CARR'S POSITIVE CIRCULATING
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THE ONLY UPRIGHT STEAM RADIATOR MADE WHICH HAS A POSITIVE CIRCULATION.
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SEND FOR DESCRIPTIVE CIRCULAR & PRICE LISTS.

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Fast Cutting—Free from Glazing—It is the best Solid Emery Wheel.

Prices: 10x1, $2·90; 14x2, $9·75; 18x2¼, $20·00; 24x3, $42·00. All other sizes at proportionate prices. State diameter of Holes in your orders for Wheels.

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PATENT EMERY WHEEL MACHINERY,
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For the rapid and perfect grinding of Planer, Paper Cutting, Leather Splitting and other long Knives.

These goods are unsurpassed for elegance of design, workmanship, capacity and durability. First premium awarded by American Institute, N. Y., 1870 and '73; Medal and Diploma by M. C. M. A., Boston, 1874.

☞ Two First Premiums awarded by Franklin Institute Exhibition of 1874.
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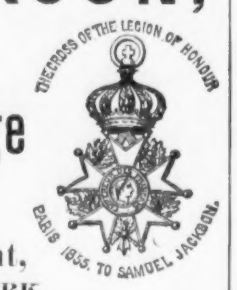

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Proprietors of **TRENTON VISE AND TOOL WORKS, Trenton, N. J.**—Vises, Picks, Mattocks, Grub Hoes, Sledges, Hammers, Bridge Work, Turn Tables, etc.
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All our goods are manufactured from patent faced iron plates; they have a smooth face and bright finish.

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Electro-Plated Table Ware

OF EVERY DESCRIPTION,

Would call especial attention to their new

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ICE PITCHERS.

These Pitchers are made of the finest quality of whitemetal, heavily plated with silver. They are finely engraved and chased in a great variety of decorations. The linings are of fine stone china. The top is secured to the body of the Pitcher in such a manner that it can be easily detached and the lining removed for cleaning or other purposes.

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The construction of the Pitcher is such that the lining can be easily replaced at a very small cost.

Factories, Taunton, Mass.

Salesroom, No. 2 Maiden Lane, New York.

Stearns' Pat. Expansive Fore Auger.

A new invention for trimming down a spoke before using the Hollow Auger, effecting a saving of one half the labor, by the knife cutting at an angle more with the grain of the spoke, than the Hollow Auger.

It is particularly adapted to heavy work, cutting any size up to inch and a half.

For sale by

G. N. STEARNS & CO., Syracuse, N. Y.

EDGAR'S PAT. "GEM" STOVE SHOVEL.

Strong, Durable, Cheap. Sells at Sight.

For sale by all *Jobbing Houses.*

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Sole Manufacturers,

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GRANTED A.D. 1766, BY THE CORPORATION OF CUTLERS OF SHEFFIELD, AND PROTECTED BY ACT OF PARLIAMENT.

BUTCHERS' KNIVES,
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SHOE KNIVES.

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"Solid Cast Steel."

Shovels

Are cut from a sheet of Solid Cast Steel, and can be recommended as the Strongest Shovel made.

The Best material is used, and they are well finished. Prices lower than any Solid Cast Steel Shovel in the market. Send a sample order. Manufactured by

KIMBALL SHOVEL CO.,

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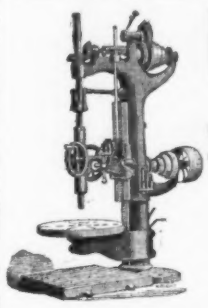

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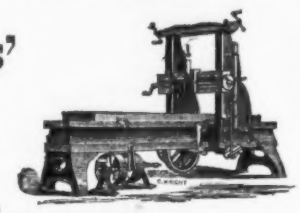
Manufacturers of

Machinists' TOOLS.



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RAILROAD TRACK TOOLS

Blacksmiths', Mining and Masons' Tools.

Also the VERONA NUT LOCK,

An Oil-Tempered Steel Spring that takes up Expansion of the Bolt, and keeps a perfectly tight Joint. Solid Steel Tamping and Clay Picks.

Ausable Horse Nail Co.,

MANUFACTURERS OF

HAMMERED,

Hammer Pointed, Polished & Blued

HORSE NAILS,

FROM

BENZON IRON.

Orders promptly filled at lowest market rates.

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GLOBE NAIL COMPANY,

MANUFACTURERS OF

Pointed, Polished & Finished Horse Shoe Nails

Recommended by over 20,000 Horse Shoers.

All Nails made from best NORWAY IRON, and warranted perfect and ready for driving. Orders filled promptly and at lowest rates by

GLOBE NAIL CO., Boston, Mass.

Portable Pipe & Bolt Threader & Cutter

PRICES FROM $80 UP.

Address, EMPIRE MFG. CO., 48 Gold St., N. Y.

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No. 24 Columbia Street, New York,

MAKER AND PATENTEE OF

Hydraulic Jacks and Punches,

ROLLER TUBE EXPANDERS

And Direct-Acting Steam Hammers.

Communications by letter will receive prompt attention.

JACKS for Pressing on Car Wheels or CRANK PINS made to order

CLARK TOMPKINS

Manufacturer and Patentee of

UPRIGHT ROTARY Knitting Machines,

Cone Winders for Hosiery Yarns,

NAPPERS FOR HOSIERY GOODS,

Stop Motions & Alarms for Knitting Machines,

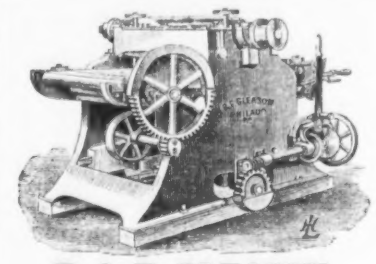
Flock Cutters, and Flock Renovators.

EXTRA PARTS FURNISHED PROMPTLY.

☞ I am also prepared to furnish anything in the line of Gear Cutting from 5½ feet to ⅜ of an inch in diameter, any shape of tooth desired; Racks, Worms, Worm Wheels, Screws any size or number of threads to the inch. Wood Planing, Iron Planing, Large Lathe Work, Gear Cogging, Shafts, Hangings and Pulleys, also all kinds of Mill Work, Jobbing, and Machinery in general.

Shop, Foot of Cypress St., Troy, N. Y.

Particular attention paid to Experimental Machinery. We aim to maintain our reputation for doing work well.



E. & F. GLEASON,

Manufacturers of

IMPROVED WOOD TOOLS.

27 Haydock St., Philadelphia.

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Address for the Paper or concerning Patents,

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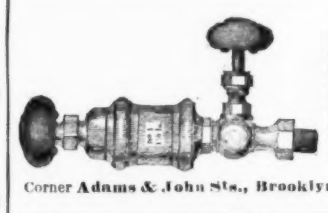

CROSSLEY'S Patent Lubricator GLOBE VALVES, &c.

Corner **Adams & John Sts., Brooklyn, N. Y.**

PYROMETERS

for BLAST FURNACES.

E. BROWN'S STANDARD PORTABLE,

E. Brown's Improved Gauntlet

Edw. BROWN,

311 Walnut St., Philadelphia.

ALSO FOR SALE

PYROMETERS

For Baker's Ovens, Boiler Flues, Galvanizing Baths, Oil Stills, Vulcanizers, Superheated Steam.

Over 300 "Gauntlett" and 100 Portable Pyrometers are now in use at Blast Furnaces.

E. Brown's Portable Blast Gauge for the plug hole, Steam Gauges, Blast Gauges, Mercury Gauges, Recording Steam Gauges, Engine Counters, Indicators for ascertaining the Horse Power.

ALSO,

REVOLUTION INDICATORS.

The Revolution Indicator is driven like a governor, either from a horizontal or vertical shaft; it constantly indicates, without the use of a watch, the number of turns per minute made by a Steam Engine.

There are many engines which have to run at varying speeds for different operations, also engines controlled entirely by hand. For such, the Revolution Indicator will be found particularly useful.

Circulars on application.

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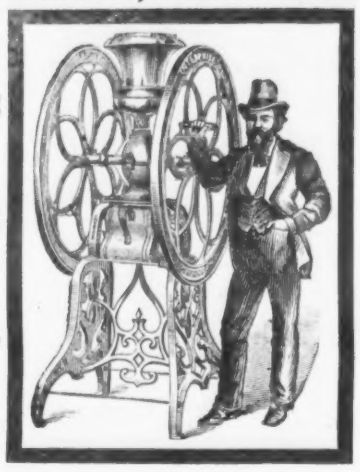
ENTERPRISE MANF'G CO. OF PA.

PHILADELPHIA,

FOR

AMERICAN COFFEE, DRUG AND SPICE MILLS.



Measuring Faucets

BUNG-HOLE BORERS,

TOBACCO CUTTERS

Cheese Cutters,

CORK PRESSERS

Etc., Etc.

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AGENTS,

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NO EXTRA CHARGE FOR

NICKEL-PLATED HOPPERS WITH EAGLE DOME TOPS.

SEND FOR ILLUSTRATED CATALOGUE.

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Manufacturers of

Wrought Butts, Strap & T Hinges, Wrought Hooks, Hasps & Staples, Wrought Repair Links & Washers,

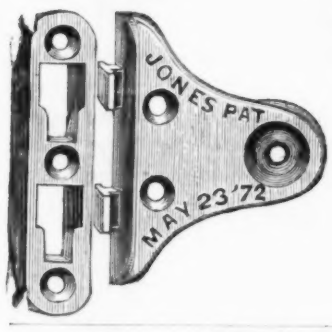
GRAHAM & HAINES, Sole Agents, 88 Chambers Street, N. Y.

AMERICAN BUTT CO.,

PROVIDENCE, R. I., Manufacturers of

Cast Butt Hinges,

AND



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New York Warehouse with

Messrs. GRAHAM & HAINES,

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ORDERS FOR CASTINGS SOLICITED.

☞ *See New Bed Fast.*

GREENFIELD TOOL CO.,

Greenfield, Mass.

Sole Manufacturers of the Celebrated

"Diamond" PLANE IRONS,

EXTRA PLATED TABLE CUTLERY. PATENT FORGED OX SHOES. The only Shoe made with concavity to fit hoof. BENCH AND MOULDING PLANES of every description, &c., &c. Drop Forgings to order. Address for Catalogue with stamp.

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Middleboro' Shovel Co.,

MANUFACTURERS OF

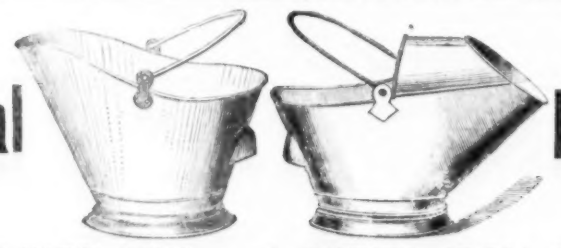
SHOVELS, SCOOPS & SPADES.

Office and Salesroom,

63 OLIVER STREET,

Works Middleboro, Mass. BOSTON.

J. CLARK WILSON & CO., New York Agents, 81 Beekman Street.

Coal  Hods.

EXCELSIOR TIN and SHEET IRON WORKS,

Successors to SMITH, BURNS & CO.,

Manufacturers of Plain, Stamped, Galvanized and Japanned

TIN WARE & SHEET IRON GOODS.

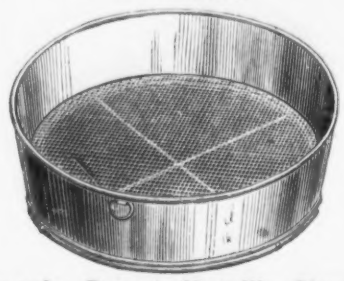
Coal Hods, Fire Shovels, Fry Pans, Water Pails, Well Buckets, &c., &c.

Factory and Warehouse, 47, 49, 51 and 53 South 5th Street, BROOKLYN.

Office and Sample Rooms, 66 Beekman Street, NEW YORK.

R. J. MANN & CO.,

Sole Manufacturers of



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The best sieve in use. To be had of all dealers.

A full assortment of these goods kept in stock at 88 Chambers Street, N. Y.

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PLYMOUTH TACK AND RIVET WORKS

PLYMOUTH, MASS., manufacturer of

TACKS, BRADS, NAILS AND

RIVETS.

Swedes and Common Iron Tacks; Leathered, Carpet Brush, Lace and Gimp Tacks; Finishing, Hungarian, 3d, 2d and 3d Fine, Trunk, Clout, and Cigar Box Nails; Black and Tinned Trunk Nails; Zinc, Iron, Copper and Steel Shoe Nails; Brads and Patent Brads; Glaziers' Points &c., &c., &c., COPPER, BRASS AND IRON RIVETS, of all kinds. Coopers' Rivets, from 1d to 6d, in casks of 100 lbs. each. Hose, Belt and Shoe Rivets and Burs. Oval and Countersunk Heads of extra lengths, made to order. SHIP AND BOILER RIVETS OF ALL SIZES AND LENGTHS

COBB & DREW,

Plymouth, Mass.

Manufacturers of Copper, Brass, and Iron Rivets: Common and Swedes Iron, Leathered, Carpet, Lace and Gimp Tacks; Finishing, Hungarian, Trunk Clout and Cigar Box Nails, &c. Rivets made to Order

NEW YORK AGENCY

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HARDWARE.

165 Greenwich Street.

Agent for the Philadelphia Star Carriage and Tire Bolts

FLUTING MACHINES.

The Celebrated K. F. M.

Manufactured for the Trade by

HENRY SOMMER,

8 to 12 Pearl Street, NEWARK, N. J.

Established in 1836.

Shelton Company,

Manufacturers of every variety of

TACKS & SMALL NAILS,

Carriage, Machine, Plow, Stove and Tire Bolts, Coach Screws, Bed Screws, &c.

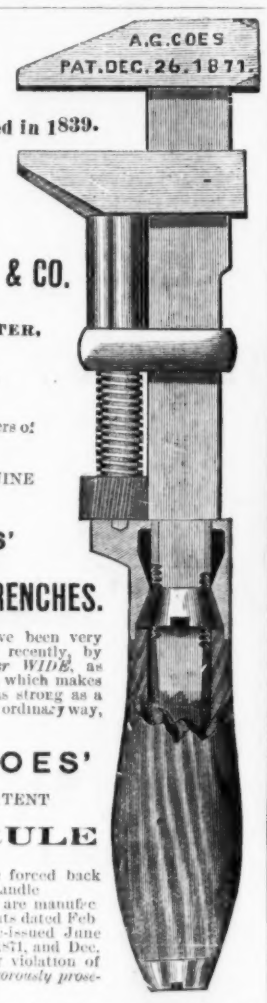
BIRMINGHAM, CONN

Buy the COVERT SNAP

And you will buy no other. It is the most convenient, durable, safe and reliable Snap ever used. It has a brass coil spring that is four times as long as any other coil spring snap, and is enclosed in the barrel back of the bolt, making a snap which works freely under all circumstances, and without danger of having its parts broken or disarranged. We manufacture all sizes of Harness Snaps and Round Eye Snaps, and Covert's Patent Thimble to go on rope for Cattle and Horse Ties. Also other goods.

Send for price list and circulars.

HOLD BACK & SNAP CO., Trov, N.Y.



Established in 1839.

A. G. COES & CO.

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MASS.,

Manufacturers of

THE GENUINE

COES'

SCREW WRENCHES.

Our goods have been very much improved recently, by making the *Bar WIDE*, as shown in the cut, which makes a 12 in. Wrench as strong as a 15 in. made in the ordinary way, and by using

A. G. COES'

NEW PATENT

FERRULE

Which cannot be forced back into the handle

☞ Our goods are manufactured under Patents dated February 7, 1860, re-issued June 20, 1871, May 2, 1871, and Dec. 26, 1871, and any violation of either will be *vigorously prosecuted.*

We call particular attention to our new Patent Ferrule, with its Supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

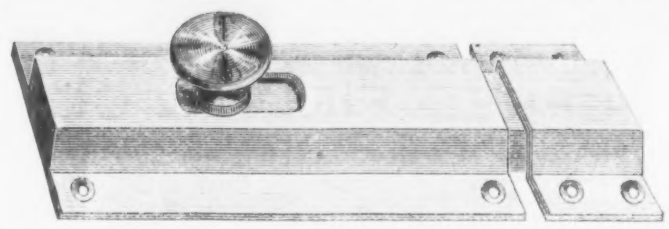
The Hart, Bliven & Mead Mfg. Co.,

18 & 20 Cliff Street, and 243 & 245 Pearl Street, New York.

Factories at KENSINGTON, CONN.

MANUFACTURERS OF

Builders' Brass Hardware.



Cast Brass Door Bolts, Chain Bolts, Cupboard Catches, Shutter Bars, Store Door Handles, etc.,

IN GREAT VARIETY.

Our Catalogue and Appendix is now ready. Price $4·50 and charge remitted on receipt of subsequent orders.

QUACKENBUSH, TOWNSEND & CO.,

Hardware, Cutlery, &c.

59 & 61 Reade Street, N. Y.

Depot for THOS. JOWITT & SONS, (Sheffield, England,) FILES and HORSE RASPS.

Rough & Ready And CLIPPER SCYTHES, Warranted.

Manufacturers of the

CHALLENGE DOOR & GATE SPRING.

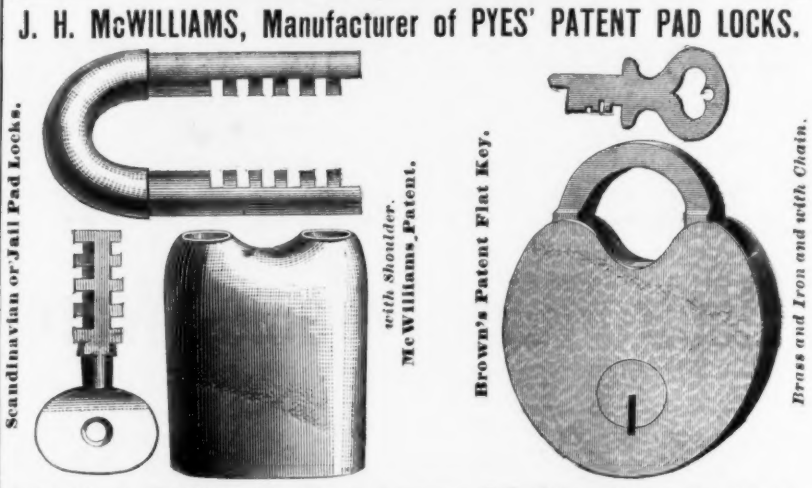
Patented March 4, 1873.

Agents for Norwich Lock MFG. CO.

"BEAVER" (American) FILES and HORSE RASPS.

"WIDE AWAKE" AXES.

J. H. McWILLIAMS, Manufacturer of PYES' PATENT PAD LOCKS.



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CAPEWELL'S GIANT NAIL PULLER.

Saves Boxes, Nails and Labor.

Sold by all House Furnishing and Hardware Jobbers.

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General Agents for CAPEWELL'S LITTLE GIANT TACK HAMMER.

STURTEVANT

Pressure Blowers, Fan Blowers and Exhaust Fans.

10,000 SOLD IN SIX YEARS.

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BOSTON, MASS.

BUCK BROTHERS, Millbury, Mass.

The most complete assortment in the U. S. of Shank, Socket Firmer, and Socket Framing Chisels,

PLANE IRONS.

Gouges of all lengths, and circles beveled inside or outside. Nail Sets, Scratch and Bolt Awls, Chisel Handles of all kinds. Orders filled promptly; generally same day as received.

PHILADELPHIA.

(Corrected weekly by Lloyd, Supplee & Walton).

Terms, 90 days. For 60 or 90 days, interest added at 0 per cent. per annum.

Anvils.—Solid Cast Steel.....₱ lb 14c
Peter Wright's, (Advanced April 1st,) ₱ lb., gold, 11½c
Wilkinson s..... " 11c
Eagle.....list 11 cents—dis 20 @ 20&10 %
Apple Parers.—Union.....per doz $7 50
Skeleton..... " 4 50
Victor..... " 7 50
Domestic..... " 7 75
Reading..... " 7 75
Bay State Paring, Coring and Slicing..... " 12 00
" " Peach Parers..... " 10 50
Axes.—Mann's Light.....Per doz. $12 00 @ 11 50
Wunt's Light..... " 14 00 @ 12 50
Red Indian, all sizes..... " 12 01 @ 11 50
Red Chiertain, all sizes..... " 12 50 @ 12 00
Crown Prince..... " 12 50 @ 12 00
Augers and Auger Bits.—Pierce's Pat.
Twist Bits.....dis 30 %
Douglass' & Ives' Bits.....dis 40&10 %
Connecticut Valley Auger Bits.....dis 40&10 %
Cook s Bits.....
Jennings' Bits.....dis 40 10&10 %
Bates' Nut Augers.....dis 10 %
Douglass' & Ives' Augers.....dis 40&10 %
Watrous' Ship Augers.....dis 10&15 %
Bonney s Pat. Hollow Augers.....dis 25 %
Sears' Patent Hollow Augers.....dis 25 %
Balances,—
Landers, Frary & Clark's..... } Sold on Morton's new
Morton's..... } List.....dis 50 %
Chattilon s.....
Common Spring with Hook..... ₱ doz $1 35 @ 2 00
Bells.—Bevin Bros. Mfg Co. Light Hand Bells.....
Common (Tissue Paper Weight).....dis 70&10 %
Swiss Pattern Hand Bells.....dis 50 %
Connett's Door Bells.....
Gt. Western & Kentucky Cow.. dis 50&10 @ 50 10&5 %
Boring Machines.—Bates' Mfg. Co., complete with augers.....
Douglas Mfg. Co., complete with augers...dis 20 @ 25 %
Common Boring Machines, no Augers.....dis 20 @ 25 %
Auguar " " .....$4 00 @ 3 75
Bolts.—Eastern Carriage Bolts.....5 00 @ 4 75
Western " .....special prices
Philadelphia " "
" Eagle, (Coleman's).....dis 60 %
Wrought Shutter, Stanley.....dis 60 %
Braces.—Barber s.....dis 50 @ 50 x 10 %
Backus.....dis 10&5 %
Bartholomew s American Ball.....dis 10&10 @ 15&10 %
Spoffard.....dis 50 %
Butts.—Cast Fast Joint, Narrow.....dis 25&10 @ 20&10 %
" " Broad.....dis 35&10 @ 40&10 %
Cast Fast Loose Joint.....dis 45&10 @ 50&10 %
" Acorn, Loose Pin.....dis 40&10 @ 45&10 %
" Mayers & Parliament.....dis 35&10 @ 40&10 %
" Acorn Jap'd.....dis 40&10 @ 45&10 %
Wrought Loose Pin.....dis 35&10 %
" Table Hinges and Back Flaps.....dis 40&10 %
" Narrow.....dis 30&10 %
" Loose Joint.....dis 35&10 %
Parker's Blind Butts.....
Sheperd s " .....
Garretson's " ..... } Discount 50&10 % by the case
Clark's " ..... 60 %.
Lull & Porter's .....
Garretson's Blind Butts Light No. 0.... } Discount 60 %
" Lull & Porter Pattern } By the case
Cherrytree Blind Butts..... } 60&10 %
Chains.—German Hatter.....dis 20 %
" Coil.....dis 20 %
Galvanized Pump.....dis 20 %
Best Proof Coil Chain— net 13 @ 13½c

₱ lb..	14	10½	9½	9	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½ ⅝ lb.

By the cask, 560 lbs., ½c per lb. less Common Chain, ¼c per lb. less.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
Tang " .....dis 40&10 @ 50 %
Beaty s Framing and Firmer.....dis 2 %
Casters.—Iron Bed.....dis 30&10 @ 40 %
Porcelain Wheel Bed.....dis 30&10 @ 40 %
Iron and Brass Wheel Plate.....dis 10 @ 10&10 %
Porcelain Wheel " .....dis 50 @ 50&10 %
Clothes Wringers.—Universal.....per doz $72 00
Novelty..... " 72 00
Discount on 2 dozen lots, $2 per dozen.
Coffee Mills.—Common Box and Side.....dis 15 %
Patent Box and Side.....dis 15 %
Cutlery.—American Pocket (best).....dis 15 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co. s.....dis 60 %
Adjustable Handle.....dis 10 @ 15 %
Beatty.....dis 15 @ 20 %
Fry Pans.
Tinned.....dis 40 @ 45 %

₱ doz..	$3 50	4 00	4 50	5 00	5 50	6 50	7 50	9 00	10 00
No....	0	1	2	3	4	5	6	7	8

Burnished.....dis 40 @ 45 %

₱ doz..	$3 00	3 75	4 25	4 75	5 25	6 00	7 00	8 00	9 00
No....	0	1	2	3	4	5	6	7	8

Files.
Nicholson Mill Files.....new list
" Bastard.....
" Taper.....
Butcher's Mill (Advanced March 8th).....$5 25 to £ gold
" Bastard..... 5 25 to £ gold
" Taper..... 5 25 to £ gold
Fluting Machines.
K. F. M.—4¼ in. rolls, $5 50.....dis 15 %
" —6 in. rolls, $6 50.....
Mrs Knox—4 in. rolls, $5 75.....dis 15 %
" —6 in. rolls, 7 00.....
Hammers.
Yerkes & Plumb's.....dis 30 %
Hammond & Son's.....dis 15 %
Veree.....dis 15 %
Hatchets.
Beatty's.....dis 30 %
Shingling and Half. { ₱ doz.. $7 00 7 50 7 75 8 00
{ No..... 1 2 3
Yerkes & Plumb.....dis 15 %
Shingling and Half. { ₱ doz.. $7 00 7 50 8 00 8 50
{ No..... 1 2 3 4
Claw.... { ₱ doz..... $7 50 8 00
{ No..... 1 2 3
Hinges.
Strap and T, (Changed March 24).....dis 45 %
Horse Nails.

	Nos.	6	7	8	9	10
Ausable		27	25	24	23	22
Globe		24	26	25	24	23
Brundage		26	24	23	22	21
	Nos.	5	6	7	8	9
Putnam		32	28	26	25	24

On Ausable, Globe and Brundage 1000 ₱ lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45&5 %
Extra discount for cash 2 %
Mineral and Rim.....
Locks and Latches.—Rim and Mortise.....dis 45&5 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 50 %
Scandinavian Pad Locks.

₱ doz.....	$10 50	10 50	12 00	12 00	13 00	15 00	dis 15 %
No.....	9	9½	10	10½	11	11½	
₱ doz.....	$18 00		18 00		22 00	22 00	dis 15 %
No.....	12		12½		13	13½	

Trunk Locks.....dis 5 @ 10 %
Thumb and Roggens Latches.....
Lanterns.—Square Candle and Oil.....dis 25 %
Globe for Oil.....dis 10 %
" " Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Weera Pattern.....dis 25 %
Pennsylvania Pattern.....dis 25 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60&10 @ 65&10 %
Lincoln's " .....dis 40&10 @ 50 %
Landers, Frary & Clark's Petroleum.....dis 15&10 %
Taylor's Petroleum Faucets.....dis 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 15 %
Woodruff.....dis 15 %
Stowe.....dis 15 %
Hale's.....dis 25 %
Stuffers.....dis 10 %
Planes.—Auburn Tool Co., "Bench".....dis 40 %
Second Quality.....dis 50 %
Metallic Plane Co.....
Evans Pat. Circular.....dis 25&5 %
Plumbs and Levels.
Adjustable.....net
Non-Adjustable.....dis 60&10 %
Plane Irons.—American.....dis 60 @ 60, 10&10 %
Butcher's.....list net
Picks.—Philadelphia.....gold £, $5 50
Pittsburgh.....net
Rules......dis 60, 10&10 @ 70 %
Rakes.—Cast Steel Garden.....dis 4 @ 40&5 %
Malleable Garden.....dis 40 @ 40&5 %
Wood Head Iron Teeth.....dis 40 %
Steelyards.—American Pattern.....dis 15 %

₱ doz....	$5 99	7 00	9 00	11 00	11 00	12 00
No.....	50	100	150	200	250	300

English Pattern.....dis 15 %

₱ doz.....	$7 00	8 67	10 67	12 67	14 67	16 67
No.....	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₱ doz.....	$9 00	10 00	12 00	15 00	18 00	21 00
No.....	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade, Boxed and Sharpened.....₱ doz. $10 00 net
Golden Clipper No. 10, Boxed and Sharpened.....
Green Clipper No. 5, Boxed and Sharpened.....₱ doz $9 75 net
Common Scythes.....₱ doz $7 50 @ 9 00
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 15 %
Disston's Hand.....dis 12½ %
W. McNiece s H'd, Cross-Cut & Circ'r, new list.dis 15 %
Boynton's Lightning, new list.....dis 40 %
" Champion.....dis 45 %
Shovels and Spades.
Rowland's Plain Back, Jan. 23d.....dis 25 %
" Back Strap " .....dis 25 %
Oliver Ames & Sons.....new list dis 12½ %
Brady Shovel Co.....dis 12½&5 %
Sad Irons.—Richmond (polished face).....per lb. 3½c
Richmond (polished face)..... by the cask " 3½c
Stone.—Arkansas Oil, No. 1.....₱ lb $1 38
Turkey Oil, No. 1..... " 100
Washita Extra..... " 30c
" No. 1..... " 22c
" " 2..... " 18c
Mineral and Rim..... " 5½c

Screws.—Iron.....new list, April 1st, 1875, dis 62½ %
brass.....dis 57½ %
Spoons,—
Plated.....dis 40&10 @ 50 %
Britannia, Boardmans (new list).....dis 50&10 %
" Parkers (old list).....dis 50 %
German Silver.....dis 50 %
" Light.....dis 30 %
Lalance & Grosjean Iron.....new list dis 35 %
Springs.—Gray's Door.....dis 70 %
Torry's Door.....dis 50 @ 50&10 %
Stocks and Dies......dis 50 @ 50&10 %
Stove Polish.—Gem.....dis 10&5 %
Onyx.....₱ gross, $5 00
Try Squares.—Winterbottom " $5 00
Stanley Eagle and Level Co.....dis 10 @ 15 %
Willis Thrall, No. 2.....dis 45&10 %
Disston s No. 2.....dis 30&10 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
" " by the case.....dis 72½&7½ %
Clout and Finishing Nails.....7½ %
" " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 30 %
Imitation " " " .....dis 30 %
Vises.—Solid Box currency.....₱ lb. net 14c
Wrenches.—Coes Genuine.....dis 10 @ 10&5 %
Coes Imitation Wrought Bar.....dis 50&10 %
" " Malleable Bar.....dis 60&10 %
" " (Kellogg) Malleable Bar.....dis 61&10 %
Tafts Pattern (Wrought Bar).....dis 20 @ 20&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " Improved Baxter.....dis 25 %
" " Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....(Advanced April 24th).....dis 40 %
No. 19 to 26.....dis 40 %
No. 27 to 36.....dis 47½ %
Coppered 6 to 12.....dis 52½ %
Tinned Broom Wire.....dis 15 @ 20 %
Galvanized Wire No. 1 to 18.....dis 30 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.
August 9, 1875.

Augers—Snell Mfg. Co.....dis 25 %
Axes—Francis.....
Bits, Auger—Snell Mfg. Co.....11 50
Phœnix.....dis 25 %
Bells, Cow—Ives's Genuine.....dis 40 %
Braces—Bit, Spofford's Patent.....dis 30 %
Brads, Cut.....dis 50 %
Boards—Stove, Brooks' Pat.dis 35 % 4 mos., 35&5 % 30 dys
Butts—Brass.....dis 30 %
Wrought Narrow.....dis 30 %
" Broad, Loose Joint.....dis 30 %
" Table and Back Flaps.....dis 35 %
Wrought Butts, Loose Pin.....dis 30 %
Belting—Rubber.....dis 35 %
Leather, new list, oak tanned.....dis 30 @ 10 %
Brick—Bath (box of 2 doz) Best English.....$1 25
" Tuttenford.....$1 00
Can Openers—Sprague's.....
Cases—Parlor Coal Hod.....dis 50 %
Chalk—White, Carpenter s.....dis 15 %
Red, Carpenter's.....₱ gross, 57c
Chisels—Firmer Socket.....90c
Framing Socket.....dis 60, 10&10 %
Corner Socket Chisels.....dis 60, 10&10 %
Slick's Carpenters'.....dis 60, 10&10 %
Castings—Malleable.....dis 60, 10&10 %
Egg Beaters—" Peerless".....₱ lb 9½c
" Centripetal".....per doz $8 00
Elbows—Corrugated.....per doz 5 00

Charcoal	3	3½	4	4½	5	dis 10 %
	$3 50	4 50	5 25	6 50		
Russia	7 00	9 50	12 00	14 00		

Files—Maiscbass Bros.....
Fluters—Geneva Hand.....dis 50 %
Freezers Ice Cream—" Champion ".....₱ doz. $15 00
Hammers—Henry W. Kip's.....dis 33½ %
Hinges, Gate—Shepard's.....dis 10 %
Hinges—Window Blind—.....dis 30&10 %
Shepard s and Standard.....
Wrought Strap and T.....dis 60&10 %
Hods, Coal—Plain, Black and Galvan'd.....dis 33½&10&5 %
Funnel, Black and Galvanized.....new list dis 15 %
Fancy and Helmet.....dis 15 %
Sad Irons.....dis 15 %
Kettles—Brass.....3½c
Copper, "Hand Made".....₱ lb. 45c
Enameled.....38c. @ 40c.
Knives, Drawing—Oval No. 1.....dis 50&10 %
Razor Blade.....dis 60, 10&10 %
Lanterns "Peerless.....No. 1 2 3
₱ doz $25 00 $10 50 $13 75 dis 10 %
Tubular.....dis 10 %
" with Guards.....$11 00
Machines—Apple Paring, "Keystone".....7 75 ₱ doz
Machines—Boring, Snell's.....dis 20 %
Mills, Coffee—Box and Side, common.....dis 15 %
Box Union and Eagle.....dis 15 %
" American.....dis 15 %
Molasses Gates—"Self Measuring".....dis 20 %
Nail—Clout and Finishing.....dis 20 %
Shoe.....dis 1½ %
Horse, Ausable.....No. 5 6 7 8 9 10

	30	25	25	24	25	22c

" " Pointed & Polished.....add 1c ₱ lb
" " 1000 lbs.....
" Clinton.....dis 5 %

No.	5	6	7	8	9	10
	21	19	18	17	16c	

Packing—Rubber.....
Paint—White Lead, U. S. Gov't.....dis 30 @ 10 %
Pans—Dripping.....₱ lb 8½c
Rivets—Iron, Black and Tinned.....₱ lb 10c
Screws—"American Screw Co"—.....dis 25&7½ %
Flat Head, Iron.....
Flat Head, Brass.....dis 62½ %
Skates and Straps—White's.....dis 52½ %
Spoons, Iron Tinned.....dis 20 %
" " by the case.....dis 10 %
Plated Rogers' A No. 1.....dis 20 %
Britannia.....dis 50 %
Squares—Steel and Iron.....dis 50&10 %
Scales—Buffalo Scale Works.....new list 50 %
Fairbanks.....dis 25 %
Stove Polish—Gem.....dis 15 %
" Dixon's.....₱ gross, $4 50
Tacks—Half Weight Am. Iron.....6 00
Vases—Palace Coal.....dis 72½&7½ %
Vises—.....dis 15 %
Parallel, Buffalo...Old pattern, dis. 30%; new, do. dis 20 %
Ware—French, Tinned and Iron.....
Stamped and Japanned.....dis 20 %
Cast Iron Hollow.....dis 5 %
Wire—Bessemer Steel.....dis 40 %
" Broad.....dis 10 %

Tin Plates.—Add for each X.

10x14, IC. Charcoal	$10 00	14x20	O. terne	2 50
12x12, "	11 50	30x28	C. "	$9 00
12½x17, "	9 50	20x28	X. "	20 00
11x20, "	11 00			25 00

Pig Tin—Straits.....24c @ 25c
Bar Tin.....26c
Solder—No. 1. Crook's.....16 c
Sheet Zinc—
" Lasalle.....500 '00 ₱ casks
Sheets.....$10 75 11 00 ₱ 100 ₱s
Babbitt Metal......₱ lb 12c
Iron Wire—Bright and Annealed.....dis 45 %
Coppered.....dis 40 %
Tinned.....dis 25 %
Tinned Broom, { Nos. 20 21 22 .....dis 35 %
{ 20c 21c 21c
Copper—Sheathing 14 @ 18 oz.....₱ lb 30c
Planished.....₱ lb 37c @ 39c
Bottoms.....₱ lb 34c
Bolts.....₱ lb 35c
Braziers' Sheets.....₱ lb 31 @ 33c
Sheet Iron.—
18 Common.....
24 Common.....$4 05
26 Common.....4 25
24 W. D. Wood & Co., Smooth Finish.....4 65
Am. Russia.....5 30
A. B.
Gen. Russia, No. 1 stained.....14c 11c
" " clean.....16½c
Galvanized.....15½c
.....dis 30 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals. No. 214, 216 and 218 Main street.
August 2d, 1875.

Tin Plate.—I. C. 10x14 Charcoal.....$10 50 @ 11 50
I. X. 10x14 Charcoal.....12 50 @ 14 00
I. C. Terne 14x20.....9 50 @ 11 00
I. C. Terne 20x28.....30 50 @ 32 00
I. C. 20 inches Continuous.....21 00
Block Tin.—
Pig.....₱ lb 26c
Bars.....₱ lb 27c
Solder.—
A I.....
Roofing.....₱ lb 16c
S. & Co.....₱ lb 17c
Lead.—Pig.....₱ lb 21c
Bar.....₱ lb 1c @ 7½c.
Copper.—₱ lb 8½c
Ingot.....₱ lb @ 24c
Plansheu....." @ 38c
Sheathing....." @ 31c
Copper Drops....." @ 34c
Sheets, 6 to 7 lb....." @ 37c
" 8 to 9 lb....." @ 35c
" 10 to 12 oz....." @ 33c
" 13 lb. up....." @ 31c
Copper Bottoms....." @ 32c
Zinc. Cast, 500 to 1000 lbs.....₱ lb 10½ @ 10¾ c
Case, 100 lbs....." 10¾ @ 11 c
Slab....." 7½c
Brass.—Roll, No. 6 to 20.....₱ lb 30c
Roll, No. 30 to 36....." 35c
Wire, No. 0 to 20....." 35c
" 20 to 27....." 40c
Babbit Metal.—Sellew & Co.....35c
Aliens'.....20c
Market.....12c
Antimony.....₱ lb 17c
Bismuth.....₱ lb $4 00
Nickel.....₱ lb $3 50
Russia Iron.—Bundle.....₱ lb 17c
Less than bundle.....₱ lb 18c
No. Stained.....₱ lb 15c @ 16c

Sheet Iron.

	Com. B.	Smooth Fin.	S. L. U.	Smooth D Re'fd.
15 to 20	4c	5 10c		7 10
22 to 24	4 10c	5 20c		7 20
26	4 30c	5 30c		7 30
27	4½c	5¾c		7 50
30	5½c			

Galvanized Iron.—Full bundles.....dis 27½ %

Nos. 18 to 20	12c	No. 26	14c
22 to 24	13c	27	15c

Bar Steel.—Silver, ₱ lb 16c; Crescent, 21c.
Iron Wire.....dis 35 %
Enameled Ware.....dis 50 %

One Piece Corrugated Elbows.....dis 10 %

Charcoal Iron.		Russia Iron.	
4½ inch	₱ doz $2 50	4½ inch	₱ doz $5 00
5 "	3 50	5 "	7 00
5½ "	4 50	5½ "	7 50
6 "	5 25	6 "	12 00
7 "	6 50	7 "	14 00

Leader Elbows, Flat Crimp Retinned or Galvanized.—Dis. 10 %

	₱ doz.		₱ doz
2 inch	$1 75	2½ inch	$2 75
3 inch	2 25	3½ inch	3 25
4 inch	2 50	4½ inch	3 50

Sheet Iron Bread Pans.....₱ ⅞ doz.
American Broilers.....₱ doz., $1 50
Thumen's Machines.....dis 5 %
Sad Irons.....
Brass Kettles.—Ansonia.....₱ lb, 3½ to 3¾c
Dog Irons.....45c
.....35c

PITTSBURGH.

The following are the Card rates of Lewis, Oliver & Phillips, H. R. Newbaul, 11 Warren St., New York, Agent. Iron, standard list assorted sizes, for large orders specifications to include Bands, small Rounds and Ovals, 25c. rate, 2 % off net.
Flat Rail (1¼x¼), punched and countersunk.....1½c ₱ lb net
Iron Wedges.....1½c ₱ lb net
Norway Nail Rods.....5c ₱ lb net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....1½c ₱ lb net
Beetle Rings.....8c ₱ lb net
Fence Pickets—
¾ round, bent to shape, 25c ₱ ft. of fence, less 15 % off net.
100 count off Standard List.
Carriage and Tire Bolts.....45 % off net
Carriage and Tire Bolts delivered on cars or boats in Pittsburgh.....
Stove Bolts.....30 % off net
Machine and Square Head Bolts.....40& 10 % off net
Coach and Lag Screws.....40& 10 % off net
Bolt Ends.....40 % off net
Pat. Hot Pressed Square and Hexagon Nuts, small sizes, from 3-16 to ⅝ in.....2½c ₱ lb off net
Pat. Hot Pressed Square and Hexagon Nuts, large sizes, from 7-16 to 2 in.....2½c ₱ lb off net
Washers, all made from new hand iron, small sizes, from 3-16 to ⅝ in.....3½c ₱ lb off net
Washers, all made from new hand iron, large sizes, from 7-16 to 1¼ in.....3½c ₱ lb off net
Nuts and Washers in 25 lb. boxes, 1c ₱ lb ex. Nuts and Washers in lots less than one keg each size, 5c ₱ lb ex.
Nuts and Washers in 5 lb. boxes, 1c. ₱ lb ex, net p lces.
Standard Caps, for Plows.....3½c. ₱ lb net
Iron Harrow Teeth, in lots of 1 ton or more, packed in 200 lb. boxes, 1 in. diam. 3½c ₱ lb net; ⅞ in. diam. 3½c ₱ lb net; ¾ in. diam. 3½c ₱ lb net.
Patent Headed Harrow Teeth, packed in boxes ½c ₱ lb ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 5c ₱ lb net; 9-16 in. diam. 6c ₱ lb net; ½ in. diam. 7c ₱ lb net. 1c ₱ lb extra when less than 1 keg of each size is ordered.
Strap & T Hinges..33½&10 % off net, delivery as custo'ry
Screw Hitching Rings.....$5 25 ₱ 100 net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long.....₱ lb 3½c net
1 to 2 in. diam. from 4 to 8 ft. long.....4 c net
1 to 2 in. diam. from 1½ to 4 ft. long.....4½c net
⅝, ¾ and ⅞ in. diam. over 4 ft. long.....4½c net
⅝, ¾ and ⅞ in. diam. from 1½ to 4 ft. long.....5 c net
Bridge bolts w th upset ends.....¼c. ₱ lb extra
Cast Iron Washers.....3½c. ₱ lb net
Duck Nest Tuyere Irons.....₱ lb 3½c net
.....$14 50 ₱ doz net

WAGON HARDWARE.

Wagon Box Strap Bolts—

10	in. long by	7-16	at Screw End, ₱ set of	8	bolts..	45c
12	"	½	"	8	"	55c
10	"	9-16	"	8	"	55c
12	"	9-16	"	8	"	65c
14	"	9-16	"	8	"	70c
10	"	⅝	"	8	"	80c
12	"	⅝	"	8	"	85c
14	"	⅝	"	8	"	85c
16	"	⅝	"	8	"	90c
18	"	⅝	"	8	"	1 00
20	"	⅝	"	8	"	1 10

5c ₱ set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
Wagon Box Rods, narrow track, each.....15c
" " wide track, each.....17c
Single Tree Irons, ₱ set of four pieces.....50c
Wrought Iron Bolster Plates, 2¾ in. wide, ₱ set.....45c
" " 3 " " 50c
" " 3½ " " 55c
" " 3½ " " 60c
Wagon Brake Ratchets, each.....14 c
" " finished with guard, each..40 c
Wrought Hammer Straps, heavy pattern, each.....13 c
" " light " each.....12 c
" Rub Irons, each.....9 c
Stay Chain Hooks, each.....5½c
Double and Single Tree Clips, figure 1, each.....8 c
" " " 2, each.....9 c
" " " 3, each.....11 c
Axle Clips, Round Part ⅞, Flat Part 1¼, each.....8c
Wagon Clevis, including Pin, complete, each.....10c
Pole Caps, each.....24c
Single Tree Hooks, Nos. 1 and 2.....45c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks, Clevis and Pin, Clips, Single Tree Hooks, and Pole Caps, in lots of 50 sets.....dis 15 %
Wagon Box Staples, 1½ to 2¼ in. to clinch ₱ 1000 $11 00 net
" " " Bevel Box Iron, to rivet on, ₱ 1000 7 50 net
Neck Yoke Eyes, each.....8½c net
" " with ⅝ rings, each.....9½c net
King Bolts, ⅝, 1, 1¼, and 1¼ in. diam.....7½c net
Wagon Rivets, ex. large, flat, oval and steeple head, ½ in. diam, all lengths.....₱ lb 45c net
Wagon Rivets, 5-16 in. diam., all lengths.....8½c net
" ⅜ to 1 inch long.....9½c net
" & Nails, in 5 lb reuer boxes.....₱ lb 1c extra
" in 25 lb wood " 5c extra
Wagon and Hinge Nails, ¼ in.....₱ lb 15 c net
" 5-16 in.....19 c net
Wagon Rivets and Nails, in less lots than one keg each size.....¾c extra
Double Tree Plates.....5c net
Coupling " .....5c net
Tongue " .....10½c net
Neck Yoke Plates.....
Tongue Cap Iron, 1½, 2 & 2½ in. wide, same price ₱ lb as Band Iron.
Wagon Chains, Stay, Lock and Tongue, 5-16 in. ₱ lb 10½c net. ¾ in., 11½c. net
Above prices are free on board cars in Pittsburgh. Subject to change of market, without notice.

DETROIT.

(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal

IC. 10x14	$11 00
IX. 10x14	13 75
XX. 10x14	16 50
IC. 12x12	11 50
IX. 12x12	14 25
IC. 14x20	14 00
IX. 14x20	17 75
XX. 14x20	20 25
XXX. 14x20	23 00
Dc. 100 Plate	10 50
DX "	13 25
DXX "	16 00
DXXX "	18 75
DXXXX 100 Plate	21 50
IX. 14x14	12 75
IC. 10x14 W	10 50
IX. 10x14 W	13 25

Roofing Tin.—Best Char.

IC. Terne, 14x20	$10 25
IX. " 14x20	13 00
IC. Terne, 20x28	22 00
IX. " 20x28	27 00

Coke Tin.—

IC. 10x14 Coke	$10 00
IX. 10x14, Coke	12 75
IC. 14x20, "	11 00

Pig Tin.—

Large Pigs	28c
Small Pigs	27c
Bars	28c

Solder.—No. 1.....16c
No. 2.....15c
Sheet Zinc.
In any quantity.....10½c
Bright Wire.
6½ lbs. in bdl.....dis 10 %
Copper.
Sheathing.....31c
Copper Bottoms.....32c
Planished Copper.
Sheathing, 14x48.....38c
Boiler Size, No. 7.....40c
" " No. 8.....40c
" " No. 9.....43c
Sheet Iron.
No. 18 Am. Com.....4 10
No. 24 Am. Com.....4 60
No. 26 Am. Com.....4 80
Patent Planished Russia.
Nos. 24, 25 and 26.....14c
Genuine Russia, No. 9, 10, 11 and 12.....18c
Broken bdls. ½c. extra.
W. D. WOOD'S & CO.'S SHEET IRON.—
Nos. 15 to 20 Smooth $5 10
" 21 to 24..... 5 30
" 25 & 26..... 5 50
" 21 to 24 Charl'l.... 6 80
" 25 & 26 " 7 00

Steel.

THREE 1st CLASS PRIZE MEDALS, CLASSES 1, 21, 22, Great Exhibition of Industry LONDON, 1851.

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

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BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES; Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS, HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS, FISH HOOKS, NEEDLES. &c.

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Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.
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English Spring and Plow Plate Steel. Also, manufacturer of

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"JENKS" TIRE, TOE CORK, SLEIGH SHOE, BLISTER, AND PLOW STEEL;

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"BEAVER" PLOW, TIRE, AXE, AND SHEET IRON.

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Unsurpassed, if equaled in quality.

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A full assortment of this universally approved OLD BRAND of English Steel, and

ARMITAGE'S GENUINE MOUSEHOLE ANVILS,

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In calling the attention of consumers of Steel in any of the parishes above enumerated, we would respectfully assure them of our ability to supply an article, that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material in quality, temper, and durability is needed.

G. SANDERSON & CO.,

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Particular attention is paid to quality and temper for

Files, Saws, Table and Pocket Cutlery, Augers, Shovels, &c.

ALSO STEEL of superior quality for **Turning Tools, Taps, Dies, Drills,** &c.

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

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CRUCIBLE AND OPEN HEARTH STEEL,

Steel Locomotive Tires. Steel Axles of every description.

STEEL FORGINGS UP TO 8000 lbs. IN WEIGHT.

Solid Steel Castings, Hammer Dies, Frogs, Crossings, etc.

BEST TOOL, MACHINERY AND SPRING STEELS.

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CHROME CAST STEEL,

WARRANTED SUPERIOR TO ANY STEEL IN THE MARKET—EITHER ENGLISH OR AMERICAN—FOR EVERY PURPOSE.

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M. M. Buck & Co., St. Louis, Mo
Potter & Hoffman, Philadelphia, Pa.
Geo. Dunbar & Co., Boston, Mass.
Wood & Leggat, Hamilton, Ont.

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Sheffield Steel Works.

(Established in 1848.)

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CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel

Elliptic and Side Springs, Sent Springs,

AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, ow Bars, &c., &c.

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Manufacturers of all descrip[illegible] of

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EQUAL TO ANY IN THE MARKET.

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DUPONT'S GUNPOWDER MILLS,

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THE MOST POPULAR POWDER IN USE.

Also, SPORTING, MINING, SHIPPING, AND BLASTING POWDER,

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LAFLIN & RAND POWDER CO.

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invite the attention of the the Hardware Trade to their facilities for delivering

BLASTING, MINING and RIFLE

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Steam Trap

THE BEST IN THE WORLD

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Augers.—Watrous Ship.....dis 10 %
L'Hommedieu Ship.....dis 15 %
Axes.—Forester's Favorite, Bronzed.....$12 00
Blue Jackets, Blue.....11 5
Excelsior, Black.....10 00
Chopper's Price, Bronzed.....10 50
Red Cross, Red.....10 00
Red Cross, Handled.....12 50
Boy's Handled Blue Jackets.....12 00
Axe Handles.—Wadleigh's Oak—
A (Extra) $2·50. B (No. 1) $2·00. C (No. 2) $1·50 ₩ doz
Bells, Sleigh—
Fancy Body, Patent Leather, Cloth Bound, White Metal, 30, No. 1.....$1·70
Fancy Body, Patent Leather, Cloth Bound, White Metal, 26, No. 1.....1·80
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 30, No. 1.....2·8
Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 36, No. 1.....2·50
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 30, No. 1.....3·38
Fancy Body, Patent Leather, Leather Bound, Silver Plated, 36, No. 1.....3·50
Shaft, Strap, White Metal, House Bells, extra, 6, No. 1.....per pair, 50c.
Common, 6, No. 1.....45c.
Blind Hinges.—
Off or Washburn's.....per hundred sets $9 50
Blind Pasts.—
Off or Washburn's.....per hundred set $6 00
Bolts.—Carriage, Phila., "Girard Works.....dis 50&10 %
Borax.—Best Refined.....₩ lb 15c
Borers.—Angle, Backus'.....dis 30 %
Boring Machines.—Angle.....each $4 75
Common, Snell's quality.....each 3 75
Braces.—Barber's.....dis 30&5 %
Backus.....dis 50 %
Spofford's.....dis 50 %
Ambuscade.....dis 50 %
Brackets.—Star Bronzed.....new list net
Star Japanned.....new list net
Store Shelf.....new list net
Brass Faucets.—L. F. & C.....dis 25 %
Butts.—Union Drilled Loose Joint.....dis 45&10 %
" " Wire Fast Joint.....dis 25&10 %
" " Acorn Loose Joint...dis 45&10 %
Brass Butts.....dis 30 %
Wrought Table Butts and Back Flaps.....dis 30 %
Wrought Narrow Butts.....dis 30 %
Can Openers—Sprague's.....dis 50 %
No. 1, Iron Handle.....$4·00
No. 2, Wood Handle.....4·50
Cartridges.—" U. S. Cartridge Co."....dis 50&10 %
Chisels.—"Buck Bros.' Shar'n Goods....add 20 or 22½ %
Socket".....add 22½ @ 25 %
Churns.—Lightning—
Redheffer patent.....3 4 5 6 gall
per doz $22 00 $27 00 $31 50 $36 00
Coal Hods.....dis 25 %
Fancy Japanned, No. 4, 15 in., $8·00; 5, 16 in., $9·00; 6, 17 in., $10·00.
Fancy Galvanized, No. 4, 15 in., $11·50; 5, 16 in., $12·00; 6, 17 in., $14·00.
Perfection, Jap'd, No. 4, 15 in., $12·00; 5, 1 in., $13·00; 6, 17 in., $14·00.
Perfection, Galv'd, No. 4, 15 in., $15·00; 5, 16 in., $16·00; 6, 17 in., $17·00.
Morning Glory, Jap'd, No. 4, 15 in., $12·00; 5, 16 in., $13·00; 6, 17 in., $14·00.
Morning Glory, Galv'd, No. 4, 15 in., $15·00; No. 5, 16 in., $16·00; No. 6, 17 in., $17·00.
Compasses and Dividers.—Bemis'.....dis 35 %
P. S. & W.....dis 25 %
Cordage.—Manilla (usual trade dis.).....₩ lb, 15c
American Tarred Hemp Lath Yarn.....₩ lb, 10c
Corn Hooks.....per doz $2·75
Cow Ties.....dis 10 %
No. 30, Open Ring, 3 foot, No. 6, with Toggle.....$3·70
No. 35, " 3 " No. 6, " Snap.....3·90
No. 40, " 3½ " No. 5, " Toggle.....4·23
No. 45, " 3½ " No. 5, " Snap.....4·40
No. 50, " 4 " No. 4, " Toggle.....4·85
No. 55, " 4 " No. 4, " Snap.....5·00
No. 60, " 4½ " No. 3, " Toggle.....5·60
No. 65, " 4½ " No. 3, " Snap.....5·80
Crow Bars.—Iron. Steel Points.....₩ lb, 5½c
"Sweet" Steel Bars.....₩ lb 11c
Brown's Steel Bars.....₩ lb 10c
K. P. & Co. Extra Drill Steel.....₩ lb 15c
Dividers.—Cook's Nickel Plated.....dis 15 %
Door Springs.—Stimson's Patent.—
No. 7, Light inside doors, $12·00.....dis 25 %
No. 8, " outside " $18·00.....dis 25 %
Torrey's.....$4·00
Egg Beaters.—Lightning, Redheffer pat. 1 qt., 2 qts.
per doz $8 00 $12 00
Emery.—Alden.....₩ lb 6½c
Wellington Mills.....₩ lb 10c
Files.—Eart Snuth & Co.'s English.....$5 to £ gold
American.....$5 to £ currency, less 12½ %
Nicholson.....new list net
Wheeler, Madden & Clemson.....$25 net
Stubb's Tapers, genuine, 3 in., $1·50; 3½, $1·62½, 4, $1·88; 4½, $2·13; 5, $2·50.
Funnel Irons.—$2·50 2·50 2·50 3·25 per doz
5, 5½, 6, 7 inch.
Deep Flange.—$3·50 3·75 4·00
5, 5½, 6 inch.
Hammers.—Maydole.....dis 12 %
M., B. & D., solid cast steel, adze eye, No. 1, $10; 1½, $7·75
" " " bell face, No. 1, $11; 1½, $9·75.
Hangers & Rollers.—Novelty.....dis 30 %
Anti-Friction.....$1 25 per pair—dis 30 %
Hatchets.—Underhill Edge Tool Co.....dis 15 %
C. F. Dowse, warranted Cast Steel—
Shingling.....0, $4·75; 1, $5·25; 2, $5·75
Claw.....1, 5·75; 2, 6·25
Lathing.....1, 5·75
Axe Pattern.....1, $7·00; 2, 7·50
Broad.....0, $5·75; 1, $6·50; 2, $7·50; 3, $9·25; 4, $10·75; 5, $12·75; 6 $14·75.

Hinges.—Strap and T. Stanley Works.....dis 33⅓&10 %
Plate, Loose and Fast Joint.....₩ lb 6c
Wrought Screw Hook.....₩ lb 6½c
Knobs.—Young's Imp. Silver'd Glass.....dis 45 %
Lanterns.—Tubular No. 0.....$9·00
Guarded, No. 74, (with Kerosene oil and candle burners).....6·25
Lead.—Sheet and Pipe.....9c—less 10 %
Locks.—Norwalk Lock Co.....dis 40&5 %
Mattocks.—
K. P. & Co., axe finish, long cutter.....$13 00—dis 10 %
Short cutter.....12 75—dis 10 %
Meat Cutters.—" Miles's" Challenge.....dis. 20 %
No. 1, $22·00; 2, $30·00; 3, $40·00.
Metal.—Babbitt. No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₩ lb
Nails.—100 and larger—dis 15c 100 keg lots.....$3 50
Nail Pullers.—Little Giant—Small.....per doz., $22·00
Little Giant—Large....." 30·00
Padlocks.—Wilcox.....dis 40&5 %
All Brass, 2¼ inch, 2 keys, job lot.....$9 00
Paper.—Tar'd Sheathing.....₩ lb 2 c
Dry Sheathing....." 3½c
" " "Beaver Brand" Rosin Sized.." 4½c
Tar'd " " " " 3½c
Felt " " " " 4½c
Picks.—
K. P. & Co. Axe Finish..₩ doz 5 to 6 $8·50; 6 to 7 $9·00
" " Solid Eyes.....5 to 6 6 to 7
$9 00 $9 50
Pins.—Universal Hat and Coat all wood—
4 in.....₩ gross $2·50; 3 in., 3 5-8; 4 in., 4 5-8—dis 15 %
Potato Diggers.—
"Partridge," 6 square tine.....₩ doz $12 00
Shumway & Co., 6 round tine.....₩ doz 9 00
Pulleys.—Axle.....1¼ No. 15, 31c; 1¼ No. 18, 33c; 1¼ No. 28, 42c; 2 No. 29, 49c.
Nashua, Bronzed Face.....1¾, 89c; 2, 90c
Steel Axle " " " 2, $1·00
Pulley Blocks.—"Best Boston Make".....net
Common Strapped Blocks—
4 5 6 7 inch.
Single, 75c. 88c. $1·00 $1·13 each.
Double, $1·00 1·12 1·25 1·60 "
Inside Iron Strapped Blocks—
5 6 7 8 9 10 inch.
Single, $1·00 1·13 1·38 2·00 2·25 1·75 each.
Double, 1·88 2·30 2·63 3·63 4·00 5·00 "
Inside Iron Strapped Blocks, with Patent Roller Bushings—
5 6 7 8 9 10 inch.
Single, $1·25 1·50 1·65 2·50 2·65 3·50 each.
Double, 2·50 3·00 3·38 4·63 5·00 6·50 "
Plated Ware.—Rogers bros.....dis 50 %
Plumb & Levels.—"Davis" Pat. Adjustable—
No. 1, Iron and Wood Center Levels.....dis 50 %
No. 2, First Quality Levels.....dis 60&10 %
No. 3, Iron Pocket.....dis 35 %
No. 4, Level and Plumb Glasses.....dis 60&10 %
No. 5, Iron Pocket Levels, per square and straight edge.....dis 50&10 %
No. 6, Improved Iron Bench Planes.....dis 20&10 %
Pocket Knives.—Conn. Cutlery Co.....new net list
American Shear Co.....dis 33⅓ %
Rail Barn Door.—For Novelty and Anti-Friction Hangers.....per foot 7c., dis 30 %
Rivets.—Black.....dis 25 %
Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8,
13 13 14 14 15 16c ₩ lb net
Rubber Moldings.—" Harmon's".....dis 10 %
No. 2, for Windows.....per foot, 5c
No. 3, for Doors.....per foot, 10c
No. 5, " per foot, 12c
Sad Irons.—Bliss & Drake.....₩ lb 3¾
Sand Paper.—0 to 2, $4·25; 2½ to 3, $4·75.....dis 10 %
Saws.—*Hand and Panel.*—
Wheeler, Madden & Clemson's, same list as "Disston's".....dis. 15 %
Disston's.....dis. 12½ %
Cross Cut—
Wheeler, Madden & Clemson X Cuts.....per ft., 37c
" " " "Star" X Cuts. " 30c
" " " Champion X Cut. " 50c
" " " One Man X Cut..each, $2·25
Boynton's genuine Lightning X Cut.....per ft., 60c
" " " One Man X Cut..each, $2·25
Circular—Wheeler, Madden & Clemson's.....dis. 25 %
Mill— " " " .....dis. 25 %
Screws.—American Screw Co.....revised list dis 62½ %
Aiken's.....dis 60&10 %
Scythe Stones.—
"Willoughby Lake," first quality.....₩ gross $6·50
" second quality....." 3·00
Shovels.—O. Ames.....dis 20 %
M. B. & D.....new list dis 12½ %
Snow, Malleable Iron Tip, D Handle—Agents for New England.....$6·50
Snow, Malleable Iron Tip, long Handle—Agents for New England.....5·50
Sifters.—Coal, Rice, &c.....$12 00
Spading Forks.—M. & E.....dis 25 %
Stone Pickers.—"Partridge," original..₩ doz $15 00
Tools.—Aiken's Pattern, 20 in set; Parr's, $8·00 per doz
Traps.—Oneida.....dis 20 %
Blake's.....dis 50 %
Vises.—K. P. & Co.'s Solid Box. Blacksmith.....₩ lb 13c
Parker's Parallel.....dis 10 %
Backus.....dis 25 %
"Howards." Parallel.....dis 20 %
Wardrobe Hooks.—Wire to drive.....₩ gross $1 00
Weather Strips.—"Harmon's".....per doz $5, 6, 7, 10 %
Weights.—Window Weights.....₩ lb 2c
Wedges—Axe.....₩ doz 18c
Wire.—
Eureka, in spools, No. 28 to 40 assorted...₩ gross $3 50
Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black.....₩ ft 5½c
Wrenches.—Genuine Wrenches, G. A. Coes..dis 40&5 %
Walton.....dis 50 %
Wringers.—
Novelty and Universal } Tub No. 2 } .....Less than 2 doz, $72 00
.....2 doz or more, 70 00
Bench A... less than 2 doz $86 00; 2 doz or more $84 00
" B... " " 94 00 " " 92 00
" C... " " 110 00 " " 107 00
Eureka.....per doz $68 00
Withington, Cooley & Co.—
Hoes, Rakes, Forks, &c.....dis 33⅓ %

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz, 110 North Street, Boston, Importers and Commission Merchants.)

Iron.—Best Refined Bar Iron.....₩ ton $60 00 @ 62 50
" Burden Best" " " 100 00
Swedish Bar Iron.....gold " 110 00
Norway Shapes.....gold " 125 00
Norway Nail Rods.....gold " 130 00
Sheet Iron, American.....₩ lb 4½c
" " Galvanized.....₩ lb 9 c
" " Russian.....gold " 14 c
Plate Iron, C. No. 1.....₩ lb 3¾c
Iron Rails.....₩ ton $52 00
Steel Rails.....gold " 47 50
Pig Iron, Found'y, No. 1 extra.....gold " 29 00
" " No. 2 extra.....gold " 27 00
" Gray Forge.....gold " 25 00
" Scotch.....gold " 30 00 @ 32 00
Wrought Scrap Iron.....gold " 31 00
Old Rails.....gold " 27 00
Steel.—₩ lb | German.....₩ lb 9½c
Eng. Tool, gold 15½c | Spring.....8 c
American Tool 14 c | Tire.....6½c
" Mach 9½c | Sleigh Shoe.....5 c
Bessemer.....7 c | Toe Calk.....7½c
Tin Plates.—₩ box gold | **Copper.**—₩ lb
I. C. Char. 10x14 @ $8·75 | Ingot.....23½c
I. C. Coke 10x14, 7 50 @ 8 00 | Bolt.....30c
Char. Roof, IC, 14x20, 8 00 | Sheathing.....30c
Coke " IC, 14x20, 7 00 | **Lead.**—₩ lb
METALS. | Pig.....7½c
Pig Tin.—₩ lb., gold | Sheet & Pipe.....8·50
Banca.....24c | **Zinc.**—Sheet..₩ lb 10c
Straits.....19c | **Spelter.**.....₩ lb 7¾c
English.....19c | **Antimony.** gold ₩ lb 12½c

ST. LOUIS.

Corrected weekly by Semple, Birge & Co.

Apple Parers.—Conqueror.....₩ doz, $7 75
Hudson's Rotary....." 7 75
Axes.—Wm. Mann's, Red Warrior.....₩ doz, $11 50
Wm. Mann's, W. Stewart's....." 13 00
" C Marshall....." 10 50
" Handled.....$5 extra
" Double Bitted....." 2 50
H. L. B. & Co.'s, L. & Co....." 11 50
" Pioneer....." 12 00
" James & Co....." 11 00
Hunt's....." 12 00
Axles.—"Jones, Henry & Co.'s" Patent Lubricating, Half Patent, Swelled Taper, Plain Taper and Concord Axles.....dis 10 & 5 %
Common Axles (Pat. Lubricating), 1⅝ inch and upward.....₩ lb. 6½c.
do. less than 1⅝ inch....." 7 c.
Bellows.—Best St. Louis make..60c ₩ in. dis 30&2½ %
Bells.—Troy, Church, School and Farm Bells..₩ lb 14c
"Improved Amalgam Bronzed," 15 in $3·00; 17 in., $4·00; 19 in., $6·00.....dis 10 %
Belting.—"Boston Belting Co.'s Rubber..dis 30&7½ %
"Bradford & Sharp's" Oak-Tanned Leather....dis 30 %
Bolts.—Arms, Bell & Co.'s Carriage & Tire..dis 70&10 %
Arms, Bell & Co.'s Machine.....dis 30&10 %
Butts.—Western Butt Co.'s new list—
Narrow Fast Joint.....dis 25&10 %
Broad Fast Joint.....dis 3 &10 %
" Loose " .....dis 45&10 %
Reversible.....dis 40&10 %
" Japanned and Silver Tipped.....dis 45&10 %
Loose Joint " Acorn " " " .....dis 45&10 %
Wheeling Hinge Co.'s W't Fast Joint Narrow.....dis 30 %
" " " Broad.....dis 35 %
" " Loose Joint.....dis 35 %
" " Reversible.....dis 35 %
" " Table & B'k Flaps.....30 %
Churns.—Julian, No. 2, $7·00; No. 3, $7·50; No. 4, $8·50.....dis 20 %
Cider Mills.
American Senior, $40·00; Am. Junior, $25·00.....dis 15 %
Corn Knives.—Dunn Edge Tool Co.'s Clip..5 75
Seymour Mfg. Co.'s Solid Steel Back.....5 00
Corn Shellers.—Sandwich Mfg. Co.'s—
Power Shellers.....dis 10 %
Hand Shellers.....Special rates
Corn Planters—Challenge, Horse.....$49·00 net
St. Louis, Hand.....per doz $15·00
Cotton Gins.—The Carver, 10 in. Saw, $4 a Saw..dis 15 %
12 in. Saw, $4·50 a Saw.....dis 10 %
Crow Bars.—Steel Pointed.....₩ lb 6½c
Drag Saw Machines.—
Culver's Iron Drag Saw.....dis 10 %
Robinson's Patent Sweep Rakes Drag Saw....dis 10 %
Fanning Mills.—Nash & Cutt's.....dis 15 %
Feed Cutters.—Improved Burdick National...dis 15 %
Sanford No. 1, $12 00 No. 2, $8 50.....net
Files.—Black Diamond, Mill.....$5·00 £ currency.
Bastard.....5·00 £ currency.
" Taper.....5·00 £ currency
Forges.—Keystone Portable Forge Co.'s.....dis 12½ %
Forks and Hoes.—
Auburn Mfg. Co.'s Hay and Manure Forks....dis 33⅓ %
" Handled Hoes.....dis 33⅓ %

Garden Seed Drills and Wheel Hoes.
Allen's Double Wheel Hoe.....dis 15 %
" Planet Drill, Nos. 2 and 3.....dis 15 %
" Combined Drill and Wheel Hoe.....dis 15 %
Grinding Mills.—French Burr Mills.....net list
Challenge Feed Mills.....dis 20 %
Sedgeberer's Nonpareil Mills.....dis 10 %
Osage Corn and Cob Mill.....dis 20 %
Hammers.—Masons' Hammers.....₩ lb 20c
Smiths' Hand.....20 c
Handles.—No. 1 Fork, Hoe and Rake.....dis 20&5
No. 2 Fork, Hoe and Rake.....dis 40 %
Harrow Teeth.—1 inch iron.....₩ lb 4½c
⅞ and 1 inch Iron....." 5c
Barbed or Headed.....5c extra
Hay and Cotton Presses.—
Dederick's Railroad.....dis 5 %
" Perpetual.....net
Hay Knives.—
Dunn Edge Tool Co.'s.....₩ doz $15 00—dis 15&5%
Lightning (Weymouth's Patent).....₩ doz $30 00
Hinges.—
Wheeling Hinge Co.'s Strap & T.....dis 33⅓&10 %
Horse Hay Fork.—Nellis' Harpoon.....dis 25 %
Horse Nails.—National Patent Pointed.....20c rates
National Patent Pointed, extra finished.....25c "
Horse Powers.—Pitts or Carey's Patent.....dis 10 %
Wheeler's Railway.....dis 10 %
Sandwich Lever.....dis 10 %
Horse Rasps.—Heller Bros.....dis 45 %
" Black Diamond".....$6·00 to the £ currency
Horse Shoes.—
Rhode Island (Perkin's Pattern).....₩ keg, $5 50
" Mule.....6 50
" Trotting Shoes.....8 00
Tredegar Horse.....per keg $5 50
" Mule.....per keg 6·00
Hose.—
Boston Belting Co.'s Rubber Medium Sizes..dis 30&10 %
" " Small Sizes, Hydrant.....dis 40 %
Ice Tools.—W. T. Wood & Co.'s Saws.....new list net
W. T. Wood & Co.'s Chest Hatchets.....new list net
" " Axes.....new list net
" " Loading Tongs.....new list net
" " Medium, Small and Family Tongs.....new list net
" " Chisels, Hooks and Grapples.....new list ne
Lawn Mowers.—Archimedean.....dis 20&5 %
Charter Oak.....dis 20 %
Mattocks and Grub Hoes.—
Klein, Logan & Co.'s Mattocks..₩ doz $13 00 @ 13 5
" " Grub Hoes, oval eye.....10 00 @ 11 50
Money Drawers.—
Pierpont & Co.'s Excelsior.....per doz $40·00 net
Nails.—Wheeling.....$3 ·5 rates
Packing.—Boston Belting Co.'s Rubber, Plain..dis 30 %
Boston Belting Co.'s Rubber, Pure.....dis 25&5 %
" " No. 2 Plain.....dis 40 %
" " Round and Square....dis 10&10 %
Picks.—Klein, Logan & Co.'s Railroad and Clay.....₩ doz $9 30 @ 11 00
Klein, Logan & Co.'s Coal....." 7 45 @ 8 40
" " Pole.....12 00 @ 15 50
" " Stone.....14 40 @ 14 90
" " Tamping.....14 75 @ 15 35
" " Miners' Drifting.....10 25 @ 12 80
Plows.—Avery's Cast and Steel.....dis 15 %
Collins Cast Cast Steel.....new list net
Perkin Steel.....new list net
Post Hole Augers.—Clark's Patent—
No. 1, ₩ doz. $27; No. 2, $30; No. 3, $32.....dis 20%
Pulleys.—5 inch.....per doz $4·25 net
4 inch.....per doz 3·25 net
Nellis' Patent.....new list dis 15 %
Pumps.
St. Louis, Farm, Patent Metal Lined...new list dis 50 %
Rakes.—Paddock's Premium Sulky.....$30 00 net
St. Louis Revolving 14 tooth.....5 50 net
" " 16 " .....6 00 net
" Hand Hay Rake.....dis 10 %
Reaper Knives and Sections.—
Geo. Barnes & Co.'s Knives.....dis 40 %
" " Sections.....dis 40 %
Road Scrapers.—Steel.....dis 25 %
Cast Iron.....dis 10&2½ %
Sad Irons.—Monitor Brand, Silver Polished...₩ lb 4c
Sash Weights.—Standard Solid Eyes.....₩ lb 3½ c
Saws.—Curtis & Co.....dis 10 %
Scythes.—Dunn Edge Tool Co.'s.....Less list dis 40&5 %
Scythe Stones.—No. 1 Ind'a Pond ₩ gr's, $7·00
Extra Indian Pond " 7 50
Premium " 10 50 dis 25 %
Diamond Grit " 13 00
Shovels and Spades.—Myers & Armor.....dis 15 %
O. Ames & Son.....dis 12½ %
Grain Scoops, Pat. Corrugated Strams M. & A. dis 12½ %
" " " Rowland's dis 10 %
" " " O. Ames & Son dis 5 %
Sledges.—Smith's Stone or Coal Sledges—
Steel Face Polished.....₩ lb 15c
Solid Cast Steel....." 35c
Spaths and Cradles.—Seymour Mfg. Co.'s..dis 20 %
Sorghum Machinery.—Bell Cane Mills.....dis 15 %
Scantlin's Seamless Evaporators.....dis 10 %
Springs.—Cleveland Spring Co.'s—
Carriage and Express.....dis 12½ %
Blue Seat Springs.....dis 10 %
Vises.—Solid Box.....₩ lb 16c
Wilson Mfg. Co.'s.....dis 15 %
Wheelbarrows.—Railroad & Garden.....new list net
Wrenches.—Coes' Genuine.....dis 33⅓&
Coes' Pattern.....dis 50&
Wagons.—Whitewater Farm Wagons—
Thimble Skein.....No. 2, $6; 3¼, $80 3½, $81
Iron Axle.....No. 1⅛, $90; 1⅜, $93 1⅝, $90

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.

IC, 10x14, Char.	10 00	IX, continuous, 20 in. x 200 ft.	
IX, 10x14, "	12 50	IC, 10x14, best	
IC, 12x12, "	10 50	Coke	$ 9 00
IX, 12x12, "	13 00	IC, 10x14, good	
IC, 14x20, "	14 00	Coke	9 00
IX, 14x20, "	13 50	IC, 10x20	9 50
IC, 14x20, Terne	9 50	IC, 14x20	11 50
IX, 14x20, "	12 00	IC, 14x30	9 50
IC, 20x28, "	20 00	IC, 14x20, Coke Lead	
IX 20x28, "	24 00	IC, 10x14, punch'd for Sales	9 50
IC, continuous 20 in. x 200 ft.			

Block Tin.

Large Pigs	25c	Bars	27c
Small "	26c		

Sheet Zinc.

Casks	₩ lb 10½c	Sheet	₩ lb 11c

Solder.

No. 1, Refined, in bars or plate.....10c
No. 2, " " " 14c
Pig Lead.....7½c
Sheet Copper.—48 to 100 lbs. Sheets 30x60.....31c
14 to 16 lbs., Sheets 30x60.....31c
10 to 12 lbs., " " and 20x12.....32c
6 to 9 lbs., " " 35c
Tinned, 14 and 16 oz. 14x48.....32c
Planished, 14 and 16 oz. 14x48.....39c
" No. 7, 8 and 9.....41c
Copper Bottoms.....41c
Sheet Iron.

	Comm'n	Sm'th.	Char'l.	Juniata
No. 16 to 20	4½c	5½c	6½c	8½c
No. 22 to 24	4½c	5 c	6¾c	8¾c
No. 26	4½c	5 c	7 c	9 c
No. 27	4¾c	5¼c	7¼c	9¼c

Galvanized Iron.....dis 30 %

No. 16 to 20	12c	No. 24	15c
21 to 24	13c	28	16c
25 & 26	14c		

Russia Iron.—Perfect.....18c | No. 1 Stained.....
In sheets, 1c. higher.
American Russia.—A.....11c | B.....11c
In sheets, 1c higher.
Lead.—Pig.....7½c | Lead Pipe, in full coils 8½c
Bar.....8½c | Lead Pipe, when cut, 8½c
Sheet Lead.....8½c
Wire—Bright.....dis 35 %
Coppered.....dis 30 %

CHICAGO.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

Tin Plate.—

10x14, IC, Ch'l. Good A		14x20, IX, Ch'l Best	$14 00
10x14, IC, " Best	10 50	14x20, IXX, "	16 50
10x14, IX, "	13 00	14x20, IXXX, "	19 00
12x12, IC, "	11 00	DC, 100 Plate, "	19 50
12x12, IX, "	13 50	DX, "	13 00
14x20, IC, "	11 50	DXX, "	15 50
		DXXX, "	18 00
		14x14, IX, "	23 50
Roofing IC, Charcoal, Best			10 00
Roofing IX, Charcoal "			12 50
20x28, IC, Charcoal Roofing, Com			19 00
20x28, IC, " Good			19 50
20x28, IC, " Best			21 00
20x28, IX, " "			24 50
10x14, IC, Coke Plates		9 50 @	10 00
14x20, IC, "		10 00 @	10 50
10x20, IC,			15 00

Block Tin.—

Large Pigs	25c	Bars	27c
Small "	26c	Straits, 2c. higher.	

Zinc.—Sheet, 500 to 1000 lb. Casks.....10½c
Loose Sheets.....11c
Slab Zinc or Spelter.....7½ 8c
Copper.—Bottoms.....36c
Sheathing.....36c
Planished.....39c
" Boiler lengths.....41c
Ingot.....24c to 25c
Bolt.....33c
Braziers' Sheets.—

30x60, 6 to 8 lbs.	₩ lb 35c	30x60, 10 to 100 lbs.	₩ lb 31c
30x60, 10 & 12 lbs.	" 32c		

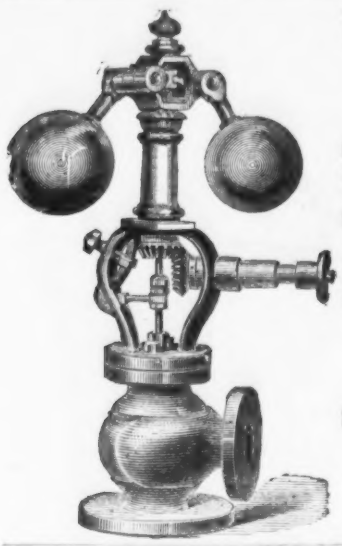
Solder.—F. S. & Co.'s make.
Best Fine.....20c
No. 1.....19c
Roofing.....17c
Braziers' or Spelter Solder.....32c to 35c
Antimony.....17c
Babbit Metal—F. S. & Co.'s.....16c
No. 2.....14c
Sheet Iron.—

	Common.	Smooth Com.	Smooth Charcoal.	Smooth Juniata.
No. 24	4½c	5½c	6¾c	8¾c
25 & 26	4½c	5¾c	7 c	9 c
27	4¾c	6 c	7¼c	9¼c

Galvanized Iron.....dis 30 %

No. 16 to 20	14c	No. 24	15c
21 to 24	15c	28	16c
25 & 26	14c		

Russia Iron.—Perfect.....18c | No. 1 Stained.....
In sheets, 1c. higher.
American Russia.—A.....11c | B.....11c
In sheets, 1c higher.
Lead.—Pig.....7½c | Lead Pipe, in full coils 8½c
Bar.....8½c | Lead Pipe, when cut, 8½c
Sheet Lead.....8½c
Wire—Bright.....dis 35 %
Coppered.....dis 30 %
Galvanized Iron.
Iron Rivets.....dis 25 %
Iron Wire.....dis 35 %
Coppered Pail Bail Wire.....dis 30 %
Copper Rivets and Burs.....dis 20 %
Russia Iron.—Nos. 9, 10, 11 and 12. ₩ lb.....18c
No. 1 stained, ₩ lb.....15c
Imitation Russia, ₩ lb.....14c
Retinned Stamped Ware.....dis 20 %



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

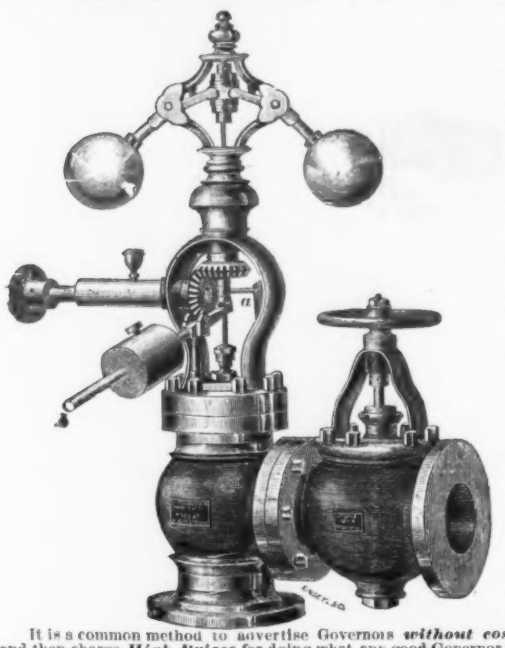
The Best and Cheapest Watcher of the Watchman made

PRICE ONLY $15.

Circulars sent free

February 10, 1875. REDUCED PRICE LIST OF THE

JUDSON PATENT IMPROVED GOVERNORS.



☞ When Governors are ordered, be particular and say Governor with Stop Valve, or without Stop Valve; and either Black, Finished or Portable, as you may require, and with or without Lever Attachment.

For dimensions and other particulars send for Illustrated List.

Capacity of Valve or Diameter of Steam Pipe in Inches.	Price, Black.	Price, Bright Finish.	Price, Portable.	Price of Lever Attachment for altering speed.	Price of Stop Valve.
⅜	18·00	20·00	17·00	..	..
½	20·00	22·00	19·00	..	..
1	24·00	27·00	22·00	2·00	5·25
1¼	29·00	32·00	27·00	2·25	6·64
1½	34·00	38·00	31·00	2·50	8·50
2	41·00	46·00	38·00	2·75	11·50
2¼	47·00	54·00	..	3·25	16·00
2½	50·00	57·00	47·00	3·50	17·00
2¾	55·00	62·00		3·75	19·00
3	62·00	70·00		4·25	22·00
3¼	71·00	80·00		4·50	27·00
4	81·00	92·00		5·00	32·00
4¼	91·00	103·00		5·50	37·00
5	102·00	114·00		6·00	42·00
5¼	116·00	129·00		6·50	48·00
6	134·00	148·00		7·00	55·00
7	160·00	176·00		8·00	69·00
8	199·00	219·00		9·00	83·00
9	230·00	255·00		10·00	..

Portable made No Larger than 2¾ in.

No Charge for Boxing & Cartage.

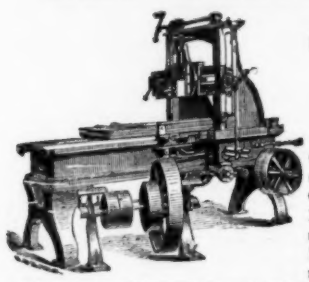
It is a common method to advertise Governors *without cost*, unless satisfactory to the customer, and then charge *High Prices* for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the above list. We guarantee the Judson Governor will do all any other Governor can do, and in Accuracy and Durability—the main essentials—we guarantee it shall do more.

JUNIUS JUDSON & SON, Rochester, N. Y.

The Pratt & Whitney Co.,

Hartford, Conn.,

Have constantly on hand and making



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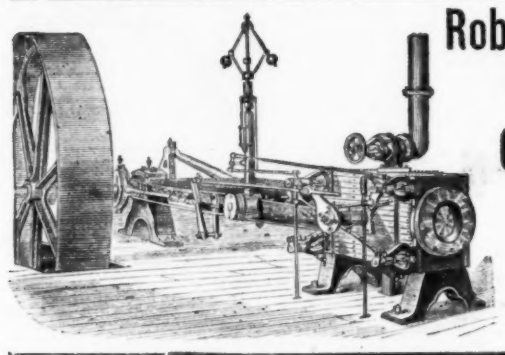
Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.



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CHESTER, PA.

Corliss Engine BUILDERS

AND

Boiler Makers.

THORNE, DeHAVEN & CO.

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RADIAL DRILLS. Self-feed—large adjustable box table—separate base plate, every convenience.

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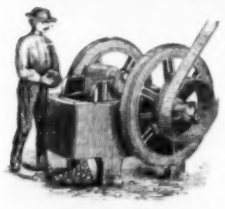
STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength



For reducing to fragments all kinds of hard and brittle substances, such as STONE for making the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

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Also for crushing **Quartz, Flint, Emery, Corundum, Feldspar, Coal, Barytes, Manganese, Phosphate Rock, Plaster, Soapstone, &c.**

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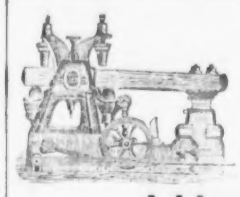

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Is More Durable, takes up Less Room, does More and Better Work with less expense for Power and Repairs than any other Hammer in use.

GUARANTEED as RECOMMENDED.

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Manufacturers of the Celebrated

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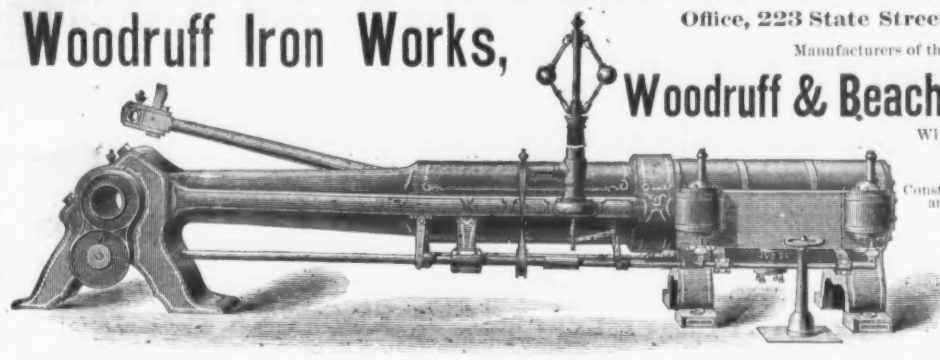

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And all kinds of Machinery.

CASTINGS

Of any size or style. Direct all letters to **The Woodruff Iron Works, Hartford, Conn.**, as the Woodruff & Beach Iron Works and firm of Woodruff & Beach are both dissolved.

Knowles Patent Steam Pumps

MANUFACTURED BY THE

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WAREHOUSES:

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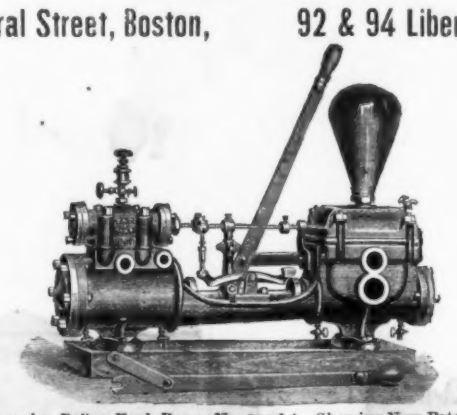

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Mining Pumps (both Double Acting Plunger, and Piston Pattern,) which we guarantee to run absolutely noiseless on any lift from 100 to 600 ft., at a single lift, a specialty. Pumps for every possible duty. Prices as low as any, and our workmanship and material altogether the Best.

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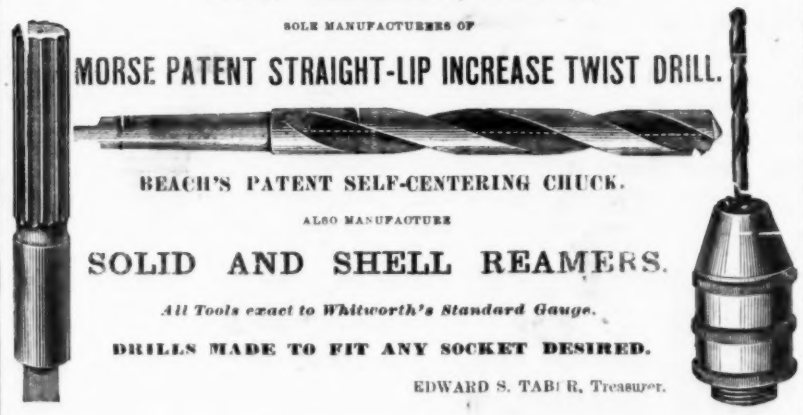

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DRILLS MADE TO FIT ANY SOCKET DESIRED.

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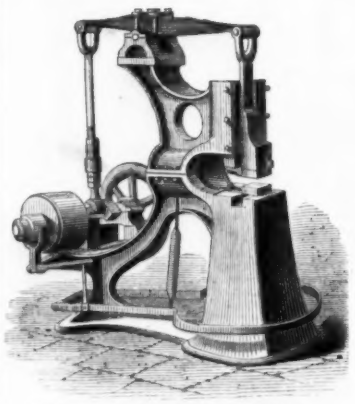
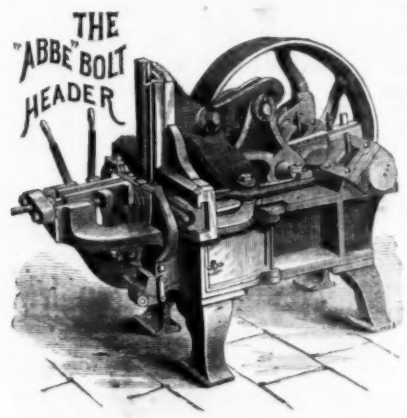


THE PALMER POWER SPRING HAMMER.



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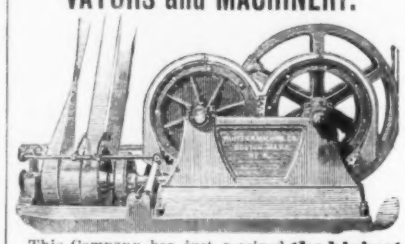

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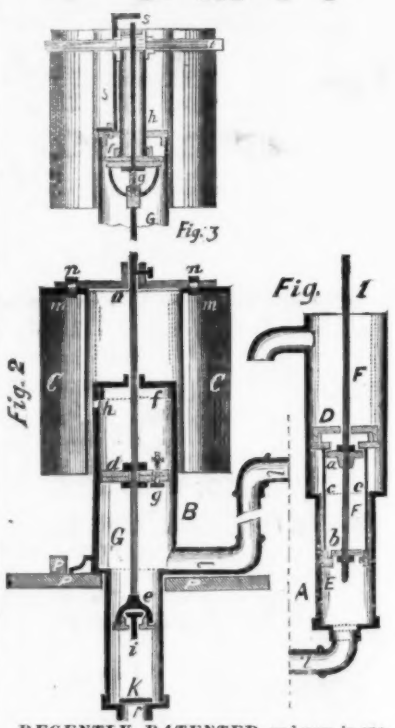
Independent Compound PUMP.



RECENTLY PATENTED, and now in successful operation at St. Michael's College, Baltimore, Md., lifting a column of water 2¾ inches diameter, and over 50 feet high, by hand power.

Its capacity may be increased to any required amount.

State Rights, or the Entire Interest in the Patent, For Sale.

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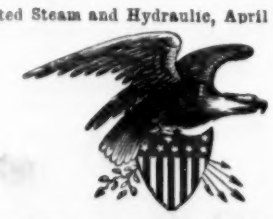
Patented Steam and Hydraulic, April 1, 186



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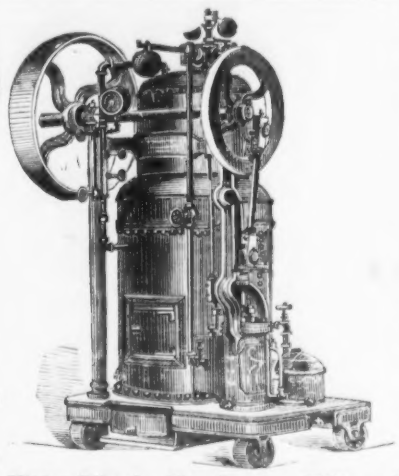

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$200·00.

Cheaper than any Engine offered of the same capacity.

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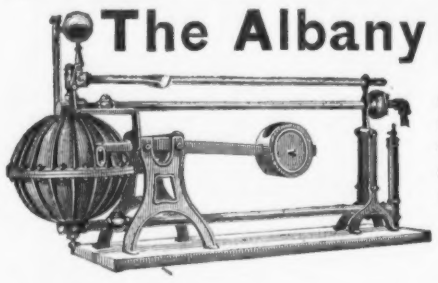

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Machinery Metalined, or Metaline furnished to Machine Builders.

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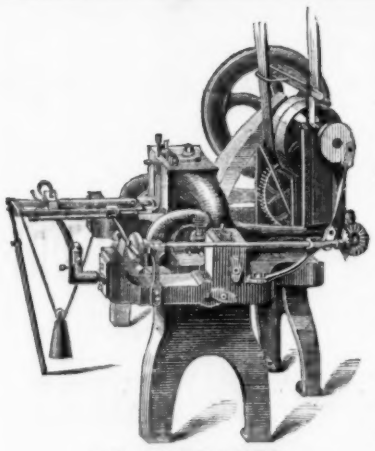

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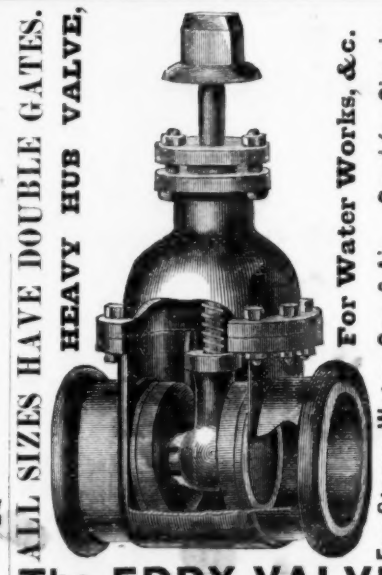

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For Steam, Water, Gas & Air,
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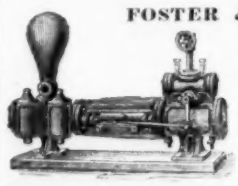

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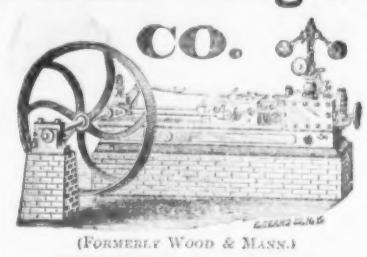

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The best and Most Complete Assortment in the Market.

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LATHES, PLANERS,

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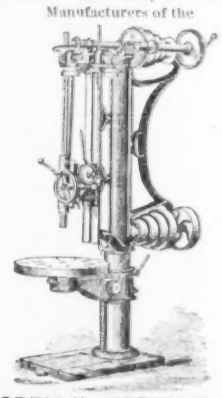
Manufacturers of the



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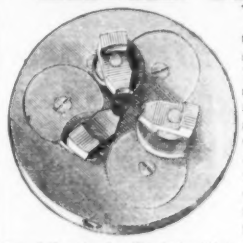
LATHE CHUCK.



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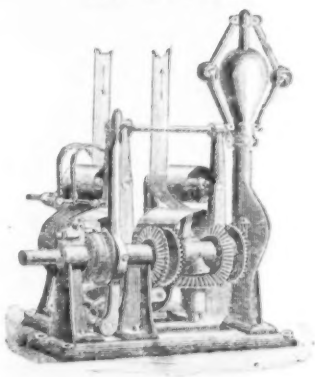

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